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The Importance of Organizational Culture in Achieving Audit Quality: Evidence from the Adoption of Equalized Parental Leave

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The Importance of Organizational Culture in Achieving Audit Quality: Evidence from the Adoption of Equalized Parental Leave

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Dedication

Dedicated to my amazing wife, kids, family, friends and colleagues. Their love, sacrifices, and encouragement were instrumental in persevering through this entire journey.

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Abstract

The Importance of Organizational Culture in Achieving Audit Quality: Evidence from the Adoption of Equalized Parental Leave

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Large accounting firms invest considerable resources into employee talent, yet we know little about whether, and when, such efforts are effective. I investigate whether one specific initiative intended to promote a supportive culture, equalized parental leave, results in higher audit quality at three audit firms. I find that audit quality improves following the adoption of equalized parental leave. I also use a novel dataset of audit employee characteristics to examine how office-level demographics directly impact audit quality and moderate the effectiveness of equalized leave. I provide evidence that staff auditor qualification is positively associated with audit quality, and show that the parental leave policy effect is moderated by employee demographics that reflect labor economics and work-life conflict. My study informs academic literature and practitioners on the importance of managing audit firm culture, builds on the broader literature of economic impacts of paid family leave, and highlights one effective talent management strategy.

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Chapter 1

Introduction

"Our people are critical to our ability to deliver high-quality audits. That's why attracting, inspiring, retaining and developing great people and promoting a culture of belonging are central to our purpose." - Ernst and Young 2019 Audit Quality Report (EY 2019)

Accounting firms devote considerable resources to the acquisition, development, and motivation of qualified employees (e.g. KPMG 2018; McCabe 2018; Fisher 2019).[1] One key area of recent talent investment for audit firms is employee work-life balance, which is intended to increase employee job satisfaction. Academic literature in psychology and organizational behavior predicts that such investments should lead to improved organizational performance (e.g. Lewis and Heckman 2006; Heavey, Holwerda, and Hausknecht 2013). However, recent literature suggests that auditors employed by large accounting firms are unwilling to take advantage of work-life balance benefits due to concerns that the use of these firm-provided benefits could result in negative long-term career implications (Buchheit, Dalton, Harp, and Hollingsworth 2016). This perception can be particularly detrimental to working parents, especially working mothers, in the audit profession who experience greater levels of work-life

[1] I use 'accounting firm' and 'audit firm' interchangeably to refer to the large professional service organizations examined in my study.

conflict (Nouri and Parker 2020). As a result, the effectiveness of accounting firms' employee talent investments, as well as overall organizational performance, may be limited without also promoting a culture that encourages employees to take advantage of firms' talent investments.

To directly confront these challenges some large accounting firms recently introduced equalized parental and family leave, which prior economic policy research predicts can foster a supportive organizational culture that is inclusive with regards to gender and family status (e.g. Bailey, Byker, Patel, and Ramnath 2019). Firm culture broadly encompasses the perceived acceptable and unacceptable behaviors within an organization, and includes expectations around acceptable workloads and work hours (Jenkins, Deis, Bedard and Curtis 2008). In line with this view of culture, equalized leave has the potential to improve the perceived acceptability of using firm-provided work flexibility, and to lead to more pronounced improvements to organizational effectiveness.

To evaluate the role that a supportive organizational culture plays in audit effectiveness, I investigate whether the staggered adoption of these initiatives by three large U.S. accounting firms leads to increased audit quality. Further, I explore whether staff (i.e. non-partner) demographics directly impact audit quality and moderate the effectiveness of equalized parental leave. I focus on staff auditors as they are the individuals who directly collect and provide initial review of the audit evidence used to form audit opinions (e.g. Herrbach 2005; Lambert and Agoglia 2011), and while partner qualifications exhibit highly homogeneous backgrounds (Christensen, Glover, Omer, and Shelley 2016), greater heterogeneity may exist at the non-partner employee level.

While research in psychology and management indicates that investments in employee talent, including the development of a supportive organizational culture, should lead to improved organizational performance (e.g. Ostroff 1992), recent empirical research on audit partner attributes casts doubt on the relevance of employee talent in achieving audit quality in large U.S. accounting firms (Aobdia, Siddiqui, and Vinelli 2016; Lennox and Wu 2018; Burke, Hoitash and Hoitash 2019). This could minimize the relevance of organizational culture in the audit setting. Accordingly, evidence that organizational culture and employee demographics are associated with audit quality would shed new light on the role that *individuals* play in achieving audit effectiveness, and actions that audit firms and regulators can take to improve audit quality. In other words, such results would suggest that prior office-level audit quality findings could be driven by the individuals that make up audit offices. Additionally, finding that the staggered adoption of equalized parental leave results in higher audit quality would indicate that audit firm investment in talent is beneficial, but more effective with conducive firm culture.

Given the mixed results in extant research on the relevance of audit employee talent, I first validate the association between staff attributes and audit quality. As in prior research, I measure audit quality using accrual quality and subsequent restatements (e.g. Beck, Francis, and Gunn 2018). While prior studies ascribe city-level workforce demographics to audit employees and find mixed results, I hand collect individual employee demographics for a subsample of audit offices to obtain a more precise estimate of individuals' effect on audit quality. After controlling for audit office attributes

previously shown to impact audit quality I find that auditor qualifications, measured separately using graduate degree attainment and attendance of a highly ranked accounting program, are positively associated with audit quality. These results support the notion that human capital variation contributes to office-level audit quality, even within individual cities, and that continued firm talent investments are likely merited. Further, these findings show that direct employee data can provide unique insights that office-level measures may not be able to capture.

I next apply a generalized difference-in-differences regression model to examine whether improved firm culture, as measured by the staggered adoption of equalized parental leave policies (i.e., equal parental leave provided to all employees, regardless of gender or primary caregiver status) at several Big 4 audit firms, impacts audit quality. PWC adopted such policies in 2014, while EY and Deloitte adopted similar policies in 2016. While most audit firms offer generous parental leave benefits, economics and management literature suggest that *equalized* benefits may create a unique organizational culture that increases the perceived viability of parental leave, leading to improved organizational performance (Beauregard and Henry 2009; Baum and Ruhm 2016). However, this literature has provided little empirical evidence to measure the organizational impacts of such policies. The staggered adoption of these policies therefore presents an ideal setting to empirically validate economic theory and to evaluate whether the benefits of equalized parental leave can be obtained in the audit setting.

In these analyses, I find that following the adoption of equalized parental leave policies by audit firms, audited financial statements are less likely to be misstated and

exhibit smaller abnormal discretionary accruals. These findings suggest that equalized leave improves organizational culture and results in improved audit quality. These results are robust to alternative specifications of the treatment variable as well as matched samples. In additional analyses, I find that the results are at least partly attributable to improved employee perceptions of work-life balance subsequent to the adoption of equalized leave policies. In particular, I find that Glassdoor ratings of audit firms improve subsequent to the adoption of equalized leave policies, with improvements most evident in employee views of work-life balance, and also find an increase in positive sentiment around parental leave subsequent to leave policy adoption. Together, these results indicate that talent investments that influence firm culture produce meaningful improvements in audit quality at large audit firms.

To further validate my findings, I next investigate whether certain staff demographics moderate the effect of these equalized leave policies on audit quality. I identify offices with (1) greater constraints on the supply or demand for qualified auditors and/or (2) greater proportions of staff who may have higher work-life conflict. I find that the audit quality benefits of equalized leave are highest at offices located in cities with higher accountant and auditor industry concentration, and offices with fewer employees who have obtained a graduate degree. These results suggest that investments in audit employee talent and organizational culture are most impactful when employees have more alternative employment opportunities (greater auditor demand) or when the supply of qualified replacement audit employees is constrained.

Additionally, I find that the audit quality effect is greater at offices with a higher proportion of female employees, and offices located in cities with more households in which all parents are in the labor force. Thus, improved organizational culture via equalized parental leave is most effective for offices whose demographics are likely to be most impacted by actual or perceived improvements to work-life conflict. Finally, in further supplemental analyses I find no evidence that audit costs are greater following the adoption of equalized leave, which can alleviate concerns about the overall costs of implementing such policies.

My study answers the call from practitioners and regulators for further research on attracting and retaining "the best and brightest students" to the auditing profession (Harris 2015). Specifically, this study should assist the Public Company Accounting Oversight Board (PCAOB) with its efforts to improve existing Quality Control standards. I identify talent-related elements including variation in employee demographics and organizational work cultures that can influence audit quality at the firm and office level, even in large U.S. accounting firms. Likewise, my study speaks directly to the current research project by the Sustainability Accounting Standards Board (SASB), which seeks to re-evaluate human capital standards, including those related to employee diversity, engagement, and inclusion, in light of recent trends in societal values (SASB 2019). Taken together, such insights from my study can aid audit firms in tailoring future initiatives to increase the effectiveness of human capital investments.

My study also contributes to academic research on the relevance of individual auditors in providing high quality audits, the impact of firm culture on organizational

performance, and factors that jointly determine office-level audit quality. I use a novel dataset of non-partner employee attributes in large US audit firms to overcome the lower precision of prior city-level workforce measures. Further, this study directly examines how a firm change in talent management and organizational culture may influence audit quality, and how employee demographics interact with these firm efforts in influencing the success of organizational human capital initiatives. These findings speak to the directions for future research noted by prior behavioral audit research such as Jenkins et al. (2008). Finally, recent economics research finds that the effectiveness of employee family leave policies may depend on the nature of such policies. This study employs a novel setting that reconciles and empirically supports these economic predictions. I provide evidence that firm efforts to enhance talent management through such tailored policies can result in meaningfully improved employee performance with a measurable effect on overall organizational performance.

Chapter 2

Background, Prior Literature and Hypothesis Development

2.1. Professional Standards Related to Auditor Talent and Audit Firm Culture

Professional standards require auditor competency, objectivity, and motivation, but do not prescribe the specific actions necessary for achieving these requirements (PCAOB 2003; AICPA 2012). Furthermore, while audit firms provide centralized firm-level oversight (Bedard, Deis, and Curtis 2008), local offices are granted significant autonomy in the administration of audit engagements (Reynolds and Francis 2000). Given this potential for variation in employment practices across accounting firms and offices, standard setters have recently emphasized the importance of effective talent management. In 2013, the PCAOB developed an Audit Quality Framework which stated that the employment of competent and talented people is "essential for audit quality" (PCAOB 2013). In this framework, the PCAOB proposed that audit quality indicators (AQIs) include tone at the top, which "drives a firm's culture and personnel management". In addition, the PCAOB included firm governance and culture in its concept release that explores revisions to existing quality control standards (PCAOB 2019). The 2019 Audit Quality Framework from the Center for Audit Quality (CAQ), with input from practitioners, similarly notes that "culture influences attitudes and behaviors … which are critical to audit quality", and specifically identifies the importance of initiatives around inclusiveness (CAQ 2019).

2.2. Prior Research Related to Employee Talent and Audit Quality

Prior research documents inter-office audit quality variation due to audit office and firm size, and industry expertise (e.g. Ferguson, Francis, and Stokes 2003; Francis and Yu 2009; Choi, Kim, Kim and Zang 2010; Reichelt and Wang 2010). However, while regulators suggest that culture and talent management policies are important for audit quality, recent research on audit partners finds mixed results that cast doubt on the relevance of individual auditor talent on audit effectiveness. In particular, this literature examines whether partner attributes can differentially impact audit clients' financial reporting (Knechel, Vanstraelen, and Zerni 2015; Lennox and Wu 2018) and finds, for example, that partner attributes impact audit fees (Zerni 2012; Goodwin and Wu 2014; Aobdia et al. 2016). However, while Gul, Wu, and Yang (2013) find that partner attributes are associated with audit quality variation in the Chinese setting, other recent studies (Aobdia et al. 2016; Burke et al. 2019) document no such relation in the U.S. Thus, firm-level oversight and quality control may be sufficient to achieve high audit quality in large U.S. audit firms, which could cast doubt on the relevance of employee talent in the audit setting. Nevertheless, while prior research has focused on partner-level attributes due to the recent disclosure of Form AP in the U.S., audit firms' talent concerns largely center on non-partner staff (Whitehouse 2014).

Recent research examines the relevance of non-partner attributes on audit quality, however, the findings are inconsistent. Beck et al. (2018) and Lee, Naiker, and Stewart (2019) ascribe city-level attributes to accounting offices, and find that variation in city-specific labor demographics such as increased workforce education characteristics are

associated with improved audit quality; however, their results are mixed when examining Big 4 audit firms. Further, other research concludes that such improvements to audit quality are driven by the quality of client accounting personnel rather than external auditors (Call, Campbell, Dhaliwal, and Moon 2017; Bills, Huang, Lin, and Wood 2019; Reville, Hoitash, and Hoitash 2019). Recently, Nagy, Sherwood, and Zimmerman (2019) find that the availability of licensed firm personnel is associated with office audit quality, which supports the notion that non-partner employees are relevant to audit quality.

Investments in talent and organizational culture are unlikely to influence audit effectiveness if staff attributes do not influence audit quality. In other words, if firm-level controls ensure high audit quality regardless of audit human capital, efforts to improve firm culture should have no impact on audit quality. While these recent academic studies suggest that audit staff attributes may help to explain audit quality, uncertainty remains due to potential alternative explanations. Therefore, as a foundation to my key research objective I begin by validating that a significant association exists between non-partner employee attributes and audit quality in large accounting firms, and pose the following signed hypothesis:

H1: *Staff auditor attributes are associated with office-level audit quality.*

2.3. Organizational Culture: Prior Research

Prior literature broadly defines organizational culture as the shared basic assumptions for acceptable and unacceptable behavior among organizational members, and includes shared perceptions of "who is in and who is out of the group" (Jenkins et al.

2008; Schein 2010). Organizational culture includes perceptions of ethical behavior as well as perceptions of acceptable workloads and work hours, including the use of flexible work arrangements. The matching of organizational culture with individual values and needs can influence employees' perceived level of belonging and inclusion, and overall job satisfaction (Brewer 2003; Jenkins et al. 2008; Shore, Randel, Chung, Dean, Ehrhart, and Singh 2011). Further, extant research in psychology and management supports the expectation that a culture that aligns with employee values and needs for inclusion can lead to improved organizational commitment and overall job performance (Wallach 1983; Kearney and Gebert 2009; Shore et al. 2011).

Although organizational culture is identified as a key concern by audit regulators and practitioners, prior studies do not directly examine how efforts to build a supportive culture impact audit quality. Prior research notes that large audit firms have a commercialized culture "with an intense focus on revenue generation, profitability, and the need to oversee and exert control over professionals" (Buchheit, Dalton, Harp, and Hollingsworth 2016). The high workloads in auditing can lead to overall job dissatisfaction, as well as increased employee burnout and turnover (Albrecht, Brown, and Field 1981; Carcello, Copeland, Hermanson, and Turner 1991; Persellin, Schmidt, Vandervelde, and Wilkins 2019), which psychology and management research suggests can negatively impact organizational performance (Heavey et al. 2013). Recent descriptive audit findings support these predictions (Stice, Stice, and White 2017; Khavis and Krishnan 2019). While prior behavioral research examines firm culture, it largely focuses on firm culture related to ethical behavior and the tradeoff between audit quality

and revenue generation (e.g. Jenkins et al. 2008). While this literature recognizes that flexible work arrangements may impact organizational culture, it does not evaluate how such arrangements impact audit effectiveness. Thus, studying how firm efforts to improve culture can impact audit quality builds on this prior literature and provides evidence that is relevant to regulators and practitioners.

2.4. The Effect of Organizational Culture on Audit Quality: Examining Parental Leave

In light of the commercialized culture present in audit firms, excessive work-family conflict is one of the most frequent reasons cited for exiting public accounting (Rhode, Sorensen, and Lawler 1977; Hooks, Thomas, and Stout 1997). Big 4 professionals experience higher levels of work-family conflict and burnout than professionals in industry or smaller firms (Buchheit et al. 2016), while women and those who have at least one child are even more likely to exhibit work-family conflict (Nouri and Parker 2020). Further, due to firm culture Big 4 auditors are less likely than non-Big 4 auditors to believe that they could use benefits intended to improve work-life balance without negatively impacting career progression (Buchheit et al. 2016). Thus, despite firms' talent investments, these individuals are more likely to face greater challenge in balancing work-family conflict with inherent psychological need for inclusion. Therefore, a culture that is supportive and inclusive to groups that experience these greater levels of work-life conflict may improve audit quality (Dalton, Cohen, Harp, and McMillan 2014). Work-life balance has recently received increased attention in the wider economics

literature due to debate around parental leave policies' impact on societal and business outcomes. The Center for Economic and Policy Research found that expanded parental leave policies may improve employee productivity, performance, and morale, and increase employee retention (Gault, Hartmann, Hegewisch, Milli, and Reichlin 2014; Appelbaum and Milkman 2015; Rossin-Slater, Ruhm, and Waldfogel 2013; Baum and Ruhm (2016). Nevertheless, such studies have been unable to identify a direct impact of these policies on organizational performance.

The CAQ's Audit Quality Framework (CAQ 2019) notes that incentives are an important part of firm culture. Therefore, in light of work-family conflict concerns, large audit firms offer generous maternity leave and flexible work arrangements and consistently earn recognition for such policies (e.g. Working Mother 2018). However, as previously noted, the prevailing firm culture among Big 4 auditors has minimized the perceived viability of using these benefits without negatively impacting career progression (Buchheit et al. 2016). Accordingly, "the presence of supportive managers and organizational climates may be at least as if not more important [than work-life balance policies] in decreasing [work-life] conflict" (Beauregard and Henry 2009). Recent economics literature suggests that 'equalized' benefits may be a necessary policy feature to create such a culture that avoids "differential employer discrimination against [working] mothers giving birth" (England, Bearak, Budig, and Hodges 2016; Bailey et al. 2019). Therefore, the supportive culture fostered by equalized leave may lead to greater participation in such programs, and more significant organizational performance impacts.

Equalized employee leave policies that grant, among various other benefits, firm-provided parental leave equal for all parents regardless of gender or caregiver status were adopted in recent years by PWC (2014), EY (2016), and Deloitte (2016) (Deloitte 2016; EY 2016; Bellstrom 2016; Elejalde-Ruiz 2016). 'Equalized' policies had *not* been announced by other Big 4 or mid-market firms as of 2018.[2] In post-implementation review, the adopting firms found that these policies have contributed to improved hiring and retention (Douglas 2018; Stych 2019), with notable increases in the percentage of fathers who took parental leave and a significant reduction in female employee turnover (Bolden-Barrett 2019) consistent with the expectations of prior literature (Almer and Kaplan 2002). However, the impact of such efforts on audit quality has yet to be empirically examined. Economic predications suggest that such leave policies may lead to improved productivity; however, workforce disruption from greater use of parental leave could instead impair productivity. Thus, I present the following hypothesis in the null:

> ***H2:*** *Equalized firm-level parental leave initiatives do not lead to improved audit quality.*

[2] The parental leave time provided pre- and post- adoption of expanded leave policies varies by firm. Further some firms (e.g. BDO and Grant Thornton) implemented policies during my sample period that extended, but did not equalize, parental leave. My study focuses on equalized leave, in line with recent economic research and as such, variation in leave time or the adoption of non-equalized policies creates noise that should bias against my findings.

2.5 When is Equalized Leave Effective for Achieving Improvements in Audit Quality?

In addition to directly influencing audit quality, employee demographics are likely to impact the effectiveness of organizational efforts including equalized parental leave. Specifically, audit employees' job satisfaction and organizational commitment (employees' psychological attachment to their employer organization) are mechanisms through which equalized parental leave affects audit quality (Nouri and Parker 2020). A moderating relationship between office demographics and equalized parental leave effectiveness may illustrate how auditor, office, and firm factors interact to determine office-level audit quality. Further, it can provide additional evidence to validate that the equalized parental leave findings result from talent investments rather than some alternative firm-level factors.

Given prior literature indicates that employees of large audit firms are subject to high levels of work-life conflict (Buchheit et al. 2016), audit offices with employees who experience greater conflict as well as lower perceived inclusion (i.e. women and working parents) may benefit more from improvements to organizational culture in large audit firms (Nouri and Parker 2020). As previously discussed, economic predictions suggest that these individuals are likely to experience the greatest benefits from the greater inclusion provided by equalized leave. Conversely, the increased work disruptions caused by expanded leave policies may negatively impact audit quality. Given these competing predictions, I explore how variation in city-level rates of dual-income households and office-level female

employment rates moderate the impact of equalized parental leave policies on audit quality, and predict the following unsigned hypothesis: [3]

H3a: *The impact of firm-level parental leave initiatives on office-level audit quality is moderated by local office work-life conflict.*

Equalized parental leave benefits may also improve organizational commitment through increased emotional attachment to the organization or an increased perceived sacrifice from changing employment (Nouri and Parker 2020). Such effects may be of greater importance when employees are inherently at risk of reduced organizational commitment due to local labor market constraints. Specifically, a larger set of alternative employment opportunities (i.e. labor demand) is positively associated with employee turnover intention (Lawler and Suttle 1973; Meyer, Stanley, Herscovitch, and Topolnytsky 2002). In other words, if local employment in accounting and auditing professions is high, audit offices may be at risk of higher employee turnover and may benefit more from equalized parental leave. On the other hand, an ample supply of qualified labor may reduce turnover intentions or the negative effect of employee turnover on audit quality. That is, offices geographically located in areas with a higher proportion of qualified employees may be less constrained in the ability to attract or retain such talent. Given these

[3] I use 'dual-income' households colloquially to refer to households in which all parents are in the labor force, in line with US Census data definitions.

expectations from research in psychology and organizational behavior, I present the following signed hypothesis:

> ***H3b:*** *The impact of firm-level parental leave initiatives on office-level audit quality is moderated by local labor markets.*

Chapter 3

Research Design

3.1. Effect of Employee Qualification on Audit Quality

To test **H1** I hand-collect employee demographics on non-partner auditors in a subset of Big 4 and large, mid-market audit offices, as further discussed in Chapter 4. I use these audit employee demographic data to examine whether variation in auditor qualification is associated with audit quality. For this analysis, I estimate the following model:

$$AudQual_{it} = \beta_0 + \beta_1 Office\_Qualif_i + Controls + Industry\ FE + YearFE + MSA\_FE + \varepsilon_{it} \quad \textbf{(1)}$$

The dependent variable in Model (1), *AudQual*, takes one of two proxies for audited company *i* in year *t* to allow for "triangulating" the construct of audit quality, as recommended by DeFond and Zhang (2014). The first dependent variable proxy, *ABS_DA*, measures abnormal discretionary accruals for company *i* in year *t*, calculated using the modified Jones model, controlling for firm performance (Jones 1991; Dechow, Sloan, and Sweeney 1995; Kothari, Leone, and Wasley 2005).[4] Consistent with prior studies (e.g.

[4] The absolute value of abnormal discretionary accruals is estimated using the following equation, estimated by industry and year, and requiring at least 10 observations per industry-year:

$$TOTACC = \beta_0 + \beta_1(1/ASSETS) + \beta_2(SALES - AR) + \beta_3(PPE) + \beta_4(ROA) + \varepsilon$$

Beck, Gunn, and Hallman 2019), the second dependent variable proxy, *RESTATEMENT*, is an indicator variable equal to one if company *i* subsequently restates its 10-K financial statements filed in year *t*, and zero otherwise.[5] See Appendix A for detailed variable descriptions and data sources.

The key independent variable of interest, *Office_Qualif* takes one of two separate proxies for average office audit employee qualification. The first, *PCT_MASTERS*, measures the *ex post* percentage of audit employees in the local accounting firm office with a graduate degree for company *i.* The second proxy, *PCT_TOP_50* measures the *ex post* percentage of audit employees who attended a top ranked accounting program.[6] I include additional company and auditor control variables used in prior research that investigates earnings and audit quality (e.g. Defond and Zhang 2014; Beck et al. 2019). Discussion and rationale for the inclusion of these variables is included below and all variables are defined in Appendix A.

First, I control for company characteristics as in prior studies (e.g. Francis and Yu 2009). I control for size using the natural logarithm of total assets (*LNASSETS*), for risk with leverage (*LEV)* measured as total debt scaled by total assets, and for profitability with *LOSS_IB*, an indicator variable equal to one when net income is negative, and zero otherwise (Biddle, Hilary and Verdi 2009). I control for investment opportunities with

[5] Aobdia (2019) finds that unsigned discretionary accruals are positively associated with PCAOB Part I deficiency findings, while restatements are associated with both Part I deficiency findings and internal inspection outcomes.

[6] Top ranked accounting program are defined as any program ranked in the top 50 in the Public Accounting Report in any of 2017-2019. My conclusions are consistent when using alternative measures such as also including top ranked business programs per the US News and World Report, and limiting to top 25 ranked programs.

TOBINQ measured as the market value of equity, plus total assets, less the book value of equity, scaled by lagged total assets. Sales growth (*SALEGTH*) is the annual percentage change in total revenue, while *OCF* measures operating cash flow scaled by total assets. I also control for variability in cash flows (*STD_OCF*) and revenue (*STD_REV*). Finally, in the discretionary accruals models, I include lagged absolute total accruals (*LAGABSACCRUALS),* while in the restatement models I include an indicator variable (*PY_RESTATED*) equal to one if the prior year 10-K was restated.

I next control for auditor attributes previously shown to influence audit quality (Francis and Yu 2009; Reichelt and Wang 2010; Beck et al. 2019). I control for audit office size using the natural logarithm of total annual audit fees for the opinion signing audit office (*LNOFFICE),* and for the length of the auditor-client relationship with *TENURE*, an indicator variable equal to one if the audit firm-client tenure is less than or equal to three years. I also include *BIGN,* an indicator variable equal to one if the auditor is a Big 4 audit firm. Finally, *INDEXPERT* is an indicator variable equal to one if the auditor is the MSA-industry leader, calculated using market share of audit fees by 2-digit SIC code (Ferguson et al. 2003), while *OPINION* is an indicator variable equal to one if a going concern opinion was issued in the current year.

In all specifications of my analyses, I include industry, year, and MSA fixed effects. First, consistent with prior audit literature (e.g. Beck et al. 2018; Beck et al. 2019), I include industry fixed effects to account for unobserved time-invariant characteristics of audit

clients.[7] Year fixed effects control for unobserved heterogeneity in audit quality across time. Finally, I include MSA fixed effects to control for city-level workforce demographics suggested in prior literature to impact audit quality and jointly attributable to auditors and audit clients.

3.2. Effect of Improved Organizational Culture on Audit Quality

For tests of **H2**, **H3a** and **H3b**, I use the staggered adoption of equalized parental leave policies among three audit firms to examine whether audit firm organizational culture impacts audit quality. Specifically, I estimate ordinary least squares (OLS) and logit regressions in the following generalized difference-in-differences model:

$$AudQual_{it} = \beta_0 + \beta_1 LEAVE_{it} + Controls + Industry\ FE + YearFE + AuditFirmFE + \varepsilon_{it} \quad \textbf{(2)}$$

The dependent variable in Model (2), *AudQual*, is measured using *ABS_DA* and *RESTATEMENT* as previously defined. The independent variable of interest, $LEAVE_{it}$, is an indicator variable set equal to one if company *i* was audited by a firm that had adopted expanded parental leave policies by year *t*, and zero otherwise.[8] Parental leave policies that equalized the amount of firm-provided parental leave, as previously defined, were adopted

[7] Consistent with prior studies, I use the 2-digit SIC for industry fixed effects. However, for robustness, I likewise perform my analyses using audit client company fixed effects (untabulated), which produces consistent findings.

[8] I require that an audit firm's equalized leave policies were enacted at least one quarter prior to the company's fiscal year end date. My findings are similar for alternative specifications for the independent variable of interest, such as defining the LEAVE based on audits that occurred in the calendar year following adoption of equalized leave.

by PWC in 2014, by EY in 2016, and by Deloitte in 2016. In all regressions, I include industry, year, and audit firm fixed effects. Industry fixed effects account for unobserved time-invariant characteristics of audit clients,[9] while year fixed effects control for unobserved heterogeneity in audit quality that occurs across time. Finally, given variation in the adoption of parental leave policies occurs at the audit firm level, I include audit firm fixed effects to control for unobserved audit firm-specific factors that may impact audit quality.

In sum, my research design functions as a difference-in-differences design in which company years where the engaged audit firm had not adopted equalized parental leave serve as the control group for company years where the engaged audit firm had adopted such policies. Thus, in Model (2) the coefficient, β_1, represents the difference-in-differences estimate, which evaluates the average treatment effect of improved talent management for the treatment group relative to the control group. In my analyses (see Chapter 4), I first exclude all time-varying control variables to ensure the consistency of my estimates. Subsequently, I include company, auditor, and local labor control variables used in prior research that investigates earnings and audit quality (e.g. Beck et al. 2019; Defond and Zhang 2014). Company and auditor controls are as previously defined in Model (1), however *BIGN* is omitted due to the inclusion of audit firm fixed effects. Discussion of additional local labor controls and rationale for the inclusion of these variables in Model (2) is included below and defined in detail in Appendix A.

[9] Consistent with prior studies on audit quality, I use the 2-digit SIC for industry fixed effects. For robustness, I also perform my analyses using audit client company fixed effects (untabulated), which produces consistent findings.

I predict that the effect of equalized leave policies varies based on city-level factors, therefore I include city controls shown in prior studies to impact audit quality (e.g. Beck et al. 2018). First, I control for the relative size of the accountant and auditor workforce in a MSA using the U.S. Department of Labor's "labor quotient" (*LOC_QUOTIENT).*[10] Consistent with prior studies, I also include *LANDGRANT*, an indicator variable equal to one when a land grant university is present in the city to proxy for a highly educated local workforce (Moretti 2004). Finally, given socioeconomic changes could impact audit quality, I additionally include *POP_PCT_CHANGE*, the five-year percentage change in population for each MSA.

[10] MSA demographic data are obtained from the U.S. Census Bureau's American Community Survey (ACS), and uses the five-year survey estimate (2013-2018) consistent with Beck et al. (2018).

Chapter 4

Sample Construction and Empirical Results

4.1. Data

4.1.1. Office Demographic Sample Construction

To test **H1**, I collect publicly disclosed demographic data of individual auditors employed in a subset of Big 4 and mid-market audit offices.[11] To select offices for analysis, I identify all MSAs that contain a single audit office from each of the Big 4 accounting firms, and require that "Book of Lists" data are available to allow for validation of hand-collected data.[12] This leaves 23 MSAs for my analyses (See Appendix B). For each Big 4 and mid-market office in the selected MSAs, I hand collect education and professional experience data on individual audit employees. I use a process similar to Reville et al. (2019) and search publicly accessible social networking platforms for all non-partner individuals employed in external financial statement auditing positions in the selected offices as of December 31, 2019.[13] For each audit individual, I note the employee's name, graduation dates, degree-granting schools, and highest degree attained.

[11] I include Grant Thornton, BDO and RSM in my sample as Non-Big 4/mid-market auditors. Although these firms are smaller than the Big 4 firms, they have a substantial national presence, with similar resources and local labor market reliance as the Big 4 audit firms, as noted in prior literature (e.g. Beck et al. 2018).

[12] The "Book of Lists" is a local business publication that contains data including local professionals employed by individual accounting firm offices in each MSA. Such data have been used in prior audit studies exploring firm market share and other office-specific characteristics (e.g. Keune, Mayhew, and Schmidt 2016; Nagy et al. 2018).

[13] Specifically, I first require that an individual's job title or description include 'Audit' or 'Assurance'. I then manually filter to exclude individuals from other service lines including Tax, Consulting, Risk or IT Assurance, and Advisory practices. I collect demographic data only for the year 2019 due to the challenge in accurately identifying auditors previously employed by specific offices.

Using these data, I infer employee gender (used in analyses of **H3a** below),[14] whether an employee graduated from a highly ranked school, and total post-graduation years of work experience.

In total, I collect demographic data for 12,342 individual audit employees. I then require that individual employee profiles list a graduation date and location, and have at least 50 social connections. Because long-tenured employees may be less likely to have updated profile data, I also exclude employees with experience greater than seven years.[15] Finally, to avoid biasing effects from outliers, I require at least 10 employee observations per office. After applying these filters, 9,292 employee profiles from 144 audit offices remain in my sample. I use these data to calculate office-level averages for the percentage of employees that have a graduate degree (*PCT_MASTERS)*, or attended a top ranked accounting program (*PCT_TOP_50*).[16] I next identify audits performed by these offices from 2017-2018. My sample includes all non-financial U.S. firms in Audit Analytics audited by Big 4 or mid-market auditors (as previously defined), and is limited to observations with sufficient data in Audit Analytics and Compustat to construct the variables to perform my analyses. My sample begins in 2017 to minimize potential

[14] To assign a gender to each employee, I calculate the probability of a given name being male or female using 85 years of Social Security Administration data on baby names and genders (available at https://www.ssa.gov/oact/babynames/limits.html). I calculate the probability of a given gender for a given name as (number of individuals of a given gender)/(total number of people with given name), and assign the most likely gender to each name. The average probability of correct gender classification in my sample is approximately .97. My results are consistent when excluding individuals with a probability of correct classification lower than .75.

[15] Employee promotion to "Senior Manager" or equivalent roles begins at this experience. While I exclude these profiles to improve data reliability, my conclusions are consistent when including such individuals in my sample.

[16] I also calculate the percentage of employees that are female (*PCT_FEMALE)*, and average years of experience (*AVG_EXP)*. These variables are used in tests of H3 and in supplemental analyses, respectively.

office-level changes in employee attributes over time and ends in 2018 to allow sufficient time for misstatements to be revealed by a subsequently announced restatement. My final sample includes 1,704 firm-year observations that meet all filtering criteria (see Table 1 Panel A).

4.1.2. Difference in Differences Sample Construction

Table 1 Panel B documents the sample selection criteria and sample size attrition for the difference-in-differences analyses used in testing **H2, H3a** and **H3b**. The sample begins with all non-financial U.S. firms in the Audit Analytics Opinions Database audited by Big 4 or mid-market auditors (as previously defined) from 2010 to 2018. The sample period begins in 2010 due to data inconsistencies in US Census ACS data prior to 2010, and ends in 2018 to allow sufficient time for misstatements to be revealed by a subsequently announced restatement. I merge city-level variables obtained from the US Census ACS database and the US Department of Labor, and again limit the sample to observations with sufficient data to perform my regressions. Finally, to mitigate additional potential confounding effects I exclude companies with multiple auditors in any year of the sample period, and require that more than five consecutive periods of data are available for each company in my sample. My final sample includes 15,626 firm-year observations that meet all filtering criteria.

Table 1 Panel C shows the sample composition by Fama-French 12 industries for the full sample, as well as treatment and control firm years. As previously described, treatment company years are those in which a company was audited by a firm that had

adopted equalized parental leave, while control company years include all other observations. As shown in Table 1, the breakout by industry for treatment and control firms is similar, with no significant deviations in industry composition between the two groups. Overall, there are no differences greater than 3.6% (Wholesale, Retail and Some Services) between the two groups, and approximately seventy percent of both treatment and control observations are in the same five industries, which supports the notion that economic fundamentals are similar between treatment and control observations.

4.2. Descriptive Statistics and Parallel Trends

I include descriptive statistics for the sample of firms used for tests of **H1** in Table 2, Panel A, while Table 3, Panel A presents the correlation matrix of variables used in this sample of firm years. On average, observations in this sample were audited by offices with approximately 61 (51) percent of employees who possess a master's degree (graduated from a highly ranked accounting program).[17] Additionally, the correlations between employee education background measures and office level characteristics are generally low. While the office-level employee graduation program ranking is modestly correlated with audit office size (r = .16), the correlations between employee education background measures and office industry expertise are generally quite small (r < .10). As such, the effect of employee education on audit quality is unlikely to be driven by

[17] In untabulated analyses I compare the means of these office-level variables, as well as gender (*PCT_FEMALE),* between treatment and control offices of Big 4 firms as defined in my difference-in-differences analyses. I find no statistically significant difference between treatment and control offices, which suggests that the adoption of equalized parental leave policies did not systematically change such demographics of audit firm offices.

inherent pre-existing office-level attributes. Additionally, while office-level degree attainment is positively correlated (untabulated) with city-level education attributes used in prior literature (e.g. Beck et al. 2018), the correlation is small ($r < .10$) and statistically insignificant.[18] Thus, direct employee data can provide inferences that are meaningfully more precise than publicly accessible city data.

Table 2, Panel B includes descriptive statistics for the full sample used in the difference in differences analyses, while Panel C includes descriptive statistics for treatment and control firm-year observations in this sample. Table 3, Panel B presents the correlation matrix of variables used in this sample. Given the treatment group does not include the audits of mid-tier firms, unsurprisingly the treatment group includes client firms that are on average larger, and audited by larger firms, industry experts, and firms with longer tenure. However, the city-level attributes are quite similar between the two groups with statistical differences noted only in population changes ($p < 0.05$). Nevertheless, I control for these observable differences in my analyses. Further, I note that identification in a difference in differences design relies on the parallel trends assumption in pre-treatment periods, and does not require treatment and control firms to be similar *ex ante* (Roberts and Whited 2013).[19]

[18] Beck et al (2018) use ACS survey data to calculate the percentage of people with a bachelor's degree or higher in the MSA where the signing auditor office is located. I similarly construct this variable in evaluating the correlation between city- and office-level demographics.

[19] Nevertheless, I also consider whether pre-existing differences between treatment and control firms may drive the results using a matched sample as discussed below. Similarly, if results were consistent using a false event date, it would indicate that systematic differences between treatment and control observations drive the results. I find no effect when using a pseudo-event date (see Chapter 5), which is inconsistent with such an alternative explanation.

I validate the parallel trend assumption by replacing *LEAVE* in Model (2) with event-time indicators. I omit year *t-1* as the benchmark group because the inclusion of all event-year indicators in the regression results in perfect collinearity. As such, this design effectively maps out the treatment effect over time, with deviations from 0 indicating the magnitude of the effect between the treatment and control groups. Figures 1 and 2 plot the regression coefficients and confidence intervals of interest for abnormal discretionary accruals and restatements, respectively. Prior to the adoption of equalized parental leave policies in year *t,* the coefficients are not significantly different from zero. The improvements in audit quality (reduced discretionary accruals and restatements) become apparent beginning in year *t,* with some fluctuations in year *t+1*, potentially due to the initial disruptive effect of employees actually taking leave. However, the trend toward improved audit quality persists through year *t+2*. Based in these analyses, I conclude that the parallel trend assumption is met in my setting.

4.3. Do Office-Specific Demographics Influence Audit Quality?

Table 4 presents the results to test **H1**. In columns (1) and (2), I find that the coefficient for *PCT_MASTERS* is negative, but only statistically significant for restatements ($p < 0.05$). On the other hand, in columns (3) and (4), I find that the coefficient for *PCT_TOP_50* is negative and statistically significant for abnormal accruals ($p < 0.01$). Together, these results support **H1**, and suggest that, even in large audit firms, individual auditors' attributes are associated with variation in audit quality above and beyond office size or industry expertise. Additionally, these findings show the

value of using multiple proxies to evaluate the effect of audit office employee demographics on audit outcomes. Finally, in connection with the key focus of this study, these results suggest that investments in talent and organizational culture may lead to higher audit quality.

4.4. Does Equalized Parental Leave Lead to Improved Audit Quality?

Tables 5 and 6 presents the results to test ***H2***. In Table 5, I find that coefficient on *LEAVE* is negative and marginally significant, which indicates that the absolute value of abnormal discretionary accruals is reduced between .045 ($p < 0.10$) and .049 ($p < 0.10$) for treatment firm-years. Similarly, in Table 5, I find that the log-odds of restatements is reduced between .441 ($p < 0.01$) and .536 ($p < 0.01$) for treatment firm-years, which equates to an approximate 4 percent lower probability of restatement for treatment observations.[20] In regression (1) of Tables 5 and 6, I include only fixed effects without additional control variables to alleviate concerns about the "bad controls" problem. That is, if control variables also change in response to the treatment, then their inclusion in a regression that examines the treatment effect could introduce econometric bias (Angrist and Pischke 2008). Regressions (2) and (3) in Tables 5 and 6 present the same results when client, firm- and auditor-level controls are included. I find that both abnormal accruals and restatements decrease after the adoption of equalized parental leave policies. Additionally,

[20] I convert the log-odds ratio produced by logit models to changes in probability by calculating the difference between (p(*RESTATEMENT* = 1 | *LEAVE* = 0)) – (p(*RESTATEMENT* = 1 | *LEAVE* = 1)); where $p(Y = 1 \mid LEAVE) = e^{(\beta_0 + \beta_1 * LEAVE)}/(1+e^{(\beta_0 + \beta_1 * LEAVE)})$. If I instead estimate Model 2 using a linear probability model, I find a coefficient on *LEAVE* that estimates a 3 percent lower probability of restatement ($p < 0.01$), which further illuminates an estimated range of the treatment effect.

the coefficients on the control variables are generally consistent with prior literature.[21] Given my conclusions are unchanged using models with and without controls, the bad controls problem does not appear to bias my findings. Finally, Regression (4) in Tables 5 and 6 replaces industry fixed effects with company fixed effects to show that the results are robust to alternative model specifications.[22] As such, my results provide evidence that equalized leave policies improve audit quality, which rejects **H2.**

4.5. Do Office Demographics Impact the Effectiveness of Talent Management Investments?

4.5.1 Do City-Level Rates of Parental Employment Moderate the Impact of Equalized Parental Leave?

To further validate the results from tests of **H2**, and to test the moderating role that workforce demographics play in equalized leave policies, I perform cross sectional tests that re-estimate Model (2) using subsets of data based on city- and office-level employee demographics. Given the strong association between restatements and audit process deficiencies (Aobdia 2019), I present these analyses using restatements as the measure of audit quality.[23]

[21] I find only limited evidence of statistical correlation between city demographics and audit quality, which could call into question the relevance of auditor qualification in large audit firms when examined using city-level data. These findings further show the importance of using direct employee data when possible as I do in my tests of H1. Nevertheless, I further explore the moderating role of such demographics in my tests of H3 below.

[22] I re-perform these analysis including only Big 4 firms as a supplemental analysis in Chapter 5 to evaluate whether firm size drives these findings and find similar results.

[23] In untabulated analyses I re-perform these tests using abnormal discretionary accruals as the dependent measure, and the conclusions are unchanged.

To test **H3a**, I re-perform the diff-in-diff analysis after splitting my sample on city-level workforce demographics to identify offices where employees are more likely to be influenced by equalized leave. First, I group firm-year observations into low and high rates of dual income households using the top and bottom terciles of local MSA-level rates of children with all parents in the workforce. Offices located in cities with high rates of dual income are more likely to have employees subject to increased work-life conflict, who may be influenced by the improved culture and flexibility provided by equalized leave policies. This may strengthen the improvement seen in audit quality subsequent to leave policy adoption. On the other hand, offices in cities with high rates of dual income households may instead experience a negative audit quality impact due to increased workforce disruptions from a higher number of employees taking parental leave.

I re-estimate Model (2) separately for firm-years in the low and high dual income rate samples in Table 7, Panel A. I find that the treatment effect is significant in both subsamples; however, a Chow test of equality of coefficients shows that the magnitude of the coefficient on *LEAVE* is greater ($p < 0.05$) in cities with high rates of dual income households. Thus, the impact of equalized leave on audit quality is greater when employees are more likely to benefit from the improved culture and flexibility provided by equalized leave. These findings support **H3a** and indicate that local parental employment rates moderate the effectiveness of equalized employee leave policies. Additionally, these results provide evidence to suggest that equalized leave in fact drives the findings in **H2**.

4.5.2. Is the Impact of Expanded Benefits Affected by Local Demand for Accountants and Auditors?

Improved organizational culture may have a greater impact in areas where audit employees have a larger number of local alternative employment opportunities. Therefore, to test **H3b**, I partition my sample into terciles by local location quotient, which measures the relative proportion of the local workforce made up by accountants and auditors. A higher location quotient would indicate a larger relative employment opportunity set for accountants and auditors in the city where each audit office is located. I once again re-estimate Model (2) separately for observations in the low and high location quotient samples.

Table 7, Panel B presents the results of this cross-sectional analysis. I find that the coefficient on *LEAVE* is negative and significant ($p < 0.01$) in the high location quotient group, which indicates improved audit quality subsequent to the adoption of equalized leave. On the other hand, in the low location quotient group the coefficient on *LEAVE* is not statistically significant. Further, the Chow test statistic shows that the magnitude of the coefficient in the high location quotient group is significantly greater ($p < 0.05$). Taken together, these results indicate that the relevance of expanded benefits in audit firms is moderated by local labor opportunities, consistent with **H3b.**

4.5.3. Do Office-Specific Gender Demographics Moderate the Impact of Equalized Leave?

To further test **H3a** and **H3b** I merge the hand-collected, *ex post,* employee demographic data used in tests of **H1** to my full difference in differences sample used in **H2,** and remove observations for offices not included in my hand-collected sample. This results in a sample size of 8,306 company-year observations. First, to complement my previous findings on the moderating effect of local parental dual employment rates, I explore whether office-level gender demographics moderate the effect of equalized leave on audit quality. Specifically, a key benefit of equalized leave noted in prior literature is improved female employee job performance due to a reduction in the real or perceived "motherhood penalty" (Dunatchik and Özcan 2019). Accordingly, if this key feature in my setting is relevant, then audit quality improvements should be greater in offices with a higher proportion of female employees. To test this, I split my sample into terciles based on the proportion of female audit staff in each office, and estimate Model (2) for the HIGH and LOW subsamples.

Results from this analysis are presented in Table 8, Panel A. I find that the reduction in restatement likelihood is only significant in offices with a high proportion of female employees ($p < 0.05$). Additionally, these results show that, relative to offices with a lower proportion of female employees, the magnitude of the coefficient on *LEAVE* is greater for offices with a high proportion of female employee. A Chow test of equality further reveals that the difference in magnitude of these coefficients is also statistically significant ($p < 0.01$). From these results, I infer that equalized leave is most impactful in offices where the

cultural impact of gender-neutral policies positively impacts a larger proportion of employees, which supports **H3a**. Further, in connection with my earlier findings on the impact of rates, this shows that both the *perceived* and *actual* improvements in organizational culture around leave flexibility can drive improvements in audit quality.[24]

4.5.4. Do Office-Specific Qualification Demographics Moderate the Impact of Equalized Leave?

Finally, I use *PCT_MASTERS* to proxy for the supply of highly qualified audit employees, and evaluate how auditor supply further moderates the impact of improved culture. That is, if an office is constrained on its supply of highly qualified talent (i.e. a lower proportion of employees who possess a graduate degree), improved retention resulting from equalized leave should have a greater impact on audit quality. To test this prediction, I split my sample into terciles based on *PCT_MASTERS* and re-estimate Model (2) separately for offices with a relatively high and low proportion of employees with a graduate degree. As shown in Table 8, Panel B, I find that the coefficient on *LEAVE* is of greater magnitude and only significant among offices in the LOW group, though a Chow test does not indicate statistical difference in coefficients between the groups. Nevertheless, these results provide some evidence in support of **H3b** and suggest

[24] In untabulated analyses, I further find that the effect of equalized leave on audit quality is moderated by parental employment (dual income) only when female employment is also high in audit offices. That is, when splitting the sample on both office-level female employment and local parental employment rates, the coefficient on *LEAVE* is only negative and significant ($p < 0.05$), and of greater magnitude, when both female employment and dual income rates are high. These analyses further support that the findings of **H2** are driven by equalized leave adoption.

that improved talent management is most impactful on audit quality in offices where the supply of highly qualified talent is constrained. In combination with my previous finding, this shows how local labor supply and demand can jointly impact audit effectiveness.

In sum, these analyses using both city-level and office-level demographics show how demographic factors jointly moderate the effectiveness of firm-level talent management efforts, and provides support for acceptance for **H3a** and **H3b.** Also of key importance, these results provide further evidence to validate rejection of **H2,** as the treatment effect would not be expected to predictably vary across office employee demographics if the results were due to some alternative firm factor. Finally, these findings jointly support the notion that talent management is relevant in producing high audit quality, with some benefits uniquely resulting from non-partner employees, and that audit employee attributes help to explain variation in office-level audit quality.

Chapter 5

Additional Analyses

5.1. Are the Results Due to Selection Effects or Pre-existing Differences?

To address concerns of pre-existing differences in the sample of companies included in estimating my difference in differences model, I re-estimate Model (2) as in my tests of **H2** using a matched sample. I first match firms on Fama-French 12 industries, size and year using coarsened exact matching (See Iacus, King, and Porro 2012), and randomly drop observations so that there are an equal number of treatment and control firms remaining in the sample. Table 9 presents the results from this analysis. The findings are consistent with my main results, as both abnormal accruals ($p < 0.05$) and restatements ($p < 0.10$) are reduced for treatment firm-years. Accordingly, my results are not driven by differences in the composition of industries, years, or the number of treatment and control firms.[25]

To further analyze whether pre-existing differences drive my results I re-estimate Model (2) as in tests of **H2** using a pseudo-event date. If my results are driven by systematic differences between the treatment and control firms, I should find similar results when using a different time period that doesn't include the adoption of equalized parental leave

[25] For further robustness, I use entropy balanced sampling, which applies a weight to each observation in order to balance the covariates of treatment and control firms on the first and second moments (Hainnmueller 2012). The results (untabulated) are likewise consistent with my previous analyses.

benefits. I use a sample period from 2005 through 2013 and use treatment timing within the pseudo-event period consistent with my original sample.[26] That is, in this pseudo-event analysis treatment occurs in 2008 for PwC and in 2010 for Deloitte and EY. Results from this pseudo-event analysis are shown in Table 10. I find no significant difference in audit quality between treatment and control firms, which indicates that systematic differences between treatment and control firms are not driving my results. In sum, my analyses are robust to matched sample as well as a pseudo-event test and are likely not driven by pre-existing differences or selection effects.

5.2. Are the Results Due to Audit Firm Differences?

In my main analyses, I include company years audited by mid-market audit firms due to these firms' similar resources relative to Big 4 audit firms. The inclusion of these firms improves the balance of treatment and control firm sample size. However, inherent differences in size and firm structure exist between Big 4 firms and mid-market firms. As such, it is possible that my findings could also be biased by the differences in these firms' characteristics. In other words, if the results are driven by differences in Big 4 accounting firm firms relative to mid-market firms, there should be no treatment effect or post-treatment trend when excluding mid-market firms from my analyses. Accordingly, I first re-perform my main tests related to H2 using Model (2) and include only Big 4 audit firms,

[26] Because of limitations in data availability prior to 2010, I use post-2010 averages for these measures in the pseudo-event analysis. As noted Tables 4 and 5, these controls do not drive my results. Further, in untabulated analyses, I note that my conclusions are unchanged when omitting these variables from the pseudo-event analysis.

and present the results in Table 11. I find results that are negative and significant for both abnormal accruals ($p < 0.10$) and restatements ($p < 0.05$), with coefficient magnitudes consistent with the findings of my main analyses. Similarly, Figures 3 and 4 show the graphical depiction of the parallel trends assumption, which is likewise consistent with the results in the main tests of H2. In both analyses the treatment effect is somewhat weakened, which is consistent with the smaller control sample size.

To further illustrate that the results are not due to inherent differences in audit firm characteristics I additionally examine whether the treatment effect for Deloitte and EY, which adopted equalized leave in 2016, differs from trends for KPMG who did not adopt a similar policy over the same period. To do so, I remove firm-years audited by PWC from my sample (as they adopted equalized leave in 2014), and re-estimate Model (2) with *RESTATEMENT* as the depending variable, replacing *LEAVE* in Model (2) with firm-year indicators. Similar to my tests of the parallel trends, I omit year *t-1* as the benchmark group because the inclusion of all event-year indicators in the regression results in perfect collinearity. Therefore, this design allows me to map out the time series trends of audit quality for each firm. Figures 5 and 6 plot the regression coefficients on these firm-year indicators. Prior to the adoption of equalized parental leave policies, the coefficients are not significantly different from zero for either group. The improvements in audit quality become apparent beginning in year *t*, for Deloitte and EY, while no such trend is noted for KPMG audits. This evidence further supports my original findings as well as the conclusion that the results do not appear to be driven by audit firm size or other inherent audit firm characteristics.

5.3. What Leads to the Improvements in Audit Quality?

A supportive firm culture should improve organizational performance, at least in part, through increased employee job satisfaction (Shore et al. 2011). In other words, job satisfaction may be a key mechanism whereby equalized leave leads to the improved audit quality shown in my tests of H2. To validate this, I use anonymous reviews submitted on Glassdoor.com by current and former audit employees to evaluate the impact of equalized leave policies on employee perceptions of their audit firms. I hand collect all job ratings submitted by full-time US employees of each of the firms included in my sample for the period 2010-2018.[27] From these approximately 17,000 ratings, I require that an employee's title indicates employment in an audit or assurance role, and that reviews identify a location to allow for the inclusion of MSA fixed effects. This results in a sample of 2,335 total reviews to estimate the following generalized difference-in-differences model:

$$Rating_{it} = \beta_0 + \beta_1 LEAVE_{it} + Controls + MSA\ FE + YearFE + AuditFirmFE + \varepsilon_{it} \quad \textbf{(3)}$$

Where *Rating* takes one of three values that measure employee reviews of audit firms. The first *OVERALL_REVIEW* is the overall rating score an employee gave his or her employer. The second, *BALANCE_REVIEW* is the employee's work-life balance review score, while the third proxy, *COMP_REVIEW* is an employee's rating of his or

[27] Glassdoor.com is a website that allows current and former employees to anonymously, and voluntarily, review companies. Individuals rate companies overall and on 'sub-topics' on a score from 1-5, where higher reviews indicate greater satisfaction.

her employer's compensation and benefits.[28] The independent variable of interest, *LEAVE*, is an indicator variable equal to one if the employee's review was submitted for a firm that adopted equalized leave policies as of the date of the review, and zero otherwise. I include controls for an employee's job tenure (*REVIEW_EXP),* and indicator variables equal to one if an employee indicated that he or she was a current (*CURRENT)* or former (*FORMER)* employee at the time of review. Finally, I include MSA, year, and audit firm fixed effects to control for any factors related to employee location, or other firm or temporal factors that could influence employee reviews.

I predict employee ratings will increase following the adoption of equalized leave benefits, and present results in Table 12. In regression (1), I find a positive and significant (p-value, one-tailed < 0.05) coefficient on *LEAVE*, indicating that overall employee reviews are on average 0.16 points greater if the employee's firm had adopted equalized leave. Similarly, in regression (2) I find that the coefficient on *LEAVE* is positive and significant (p-value, one-tailed < 0.01), which indicates that employees' ratings of work-life balance are approximately 0.21 points greater if the employee's firm had adopted equalized leave. Finally, in regression (3) I find that the coefficient on *LEAVE* is positive and marginally significant (p-value, one-tailed < 0.10). In untabulated analyses, I note that no such relationship exists for other sub-ratings, and similarly find that employees' reviews are more likely to include comments related to 'maternity' and 'paternity'

[28] In untabulated analyses, I find that employment as an auditor strongly predicts lower employee ratings of work/life balance as well as compensation & benefits among public accounting employees. No such relationship is present with other sub-ratings. Accordingly, I focus on these two sub-ratings as they are likely to be most impactful for auditors, and similarly may be most likely to be impacted by expanded leave policy adoption.

benefits subsequent to the adoption of equalized leave, further supporting the underlying mechanism. Collectively, these results indicate that employee job satisfaction is a likely mechanism through which equalized leave improves audit quality.

5.4. Do Expanded Employee Benefits Lead to Greater Costs?

A key factor that may deter firms from implementing equalized leave policies is concern over related costs of providing such benefits. Specifically, the monetary expense of providing expanded leave policies may lead to increased overall audit costs in light of added paid time off for many audit employees which could necessitate a larger employee workforce or decreased job performance among the remaining workforce. Conversely, economic theory suggests that improved retention from increased parental leave benefits could result in efficiencies due to lower costs of hiring and training, as well as overall performance efficiencies associated with retained employees (e.g. Beauregard and Henry 2009). Such cost additions or savings are likely to be passed through to audit clients (Simunic 1980). Thus, I explore whether audit fees are impacted for treatment firm years in my sample using the following regression:

$$LogAF_{it} = \beta_0 + \beta_0 + \beta_1 LEAVE_{it} + Controls + Industry\ FE + YearFE + AuditFirmFE + \varepsilon_{it} \quad \textbf{(4)}$$

In this model, I regress the natural logarithm of audit fees (*LogAF)* for all firm years in my sample, where the independent variable of interest, *LEAVE,* is as previously defined in Model (2). I additionally incorporate key control variables used in prior studies

(e.g. Hay, Knechel and Wong 2006; Blankley, Hurtt, and MacGregor 2012; Lobo and Zhao 2013) related to auditor effort and risk. With regard to auditor effort, I control for company size (*LNASSETS*), foreign business operations (*FOREIGN),* and M&A activity *(MERGER),* and also include *OPINION,* an indicator equal to one if the company receives a going concern opinion in year *t,* and zero otherwise. For client risk, I control for key financial ratios of company *i* in year *t,* including the current ratio (*CR),* the ratio of current assets to total assets (*CA_TA*), accounts receivable and inventory, scaled by total assets (*ARINV*), return on assets (*ROA*), the ratio of intangible assets to total assets (*INTANG),* and company leverage (*LEV),* and additionally include *LOSS,* an indicator equal to one if company *i* incurred a loss in year *t,* and zero otherwise. I also include *BUSY* if to control for companies with a calendar year end, and *MATWEAK,* to control for the internal control quality of company *i*. Finally, I include industry and year fixed effects as well as audit firm indicators as in Model (2).

As shown in Table 13, I find a negative, but insignificant (two-tailed), coefficient on *LEAVE.* Thus, my results show no statistically significant evidence that audit fees are impacted by the adoption of equalized leave. This may indicate that any direct costs of providing such leave are offset by cost efficiencies of greater employee retention. This analysis is subject to noise, as audit fees are shown to be "sticky" (De Villiers, Hay, and Zhang 2014) and large firms may choose to bear some of the costs of firm investments without adjusting audit fees. Nevertheless, these results appear to provide some early evidence to indicate that the introduction of equalized leave does not result in significant monetary costs for large audit firms. These findings are in line with economic predictions

that improvements to talent management can lead to reduced employee turnover intention, increased organizational performance, and overall cost efficiencies that are likely to offset the cost of such firm investments.

Chapter 6

Conclusion

Prior research provides mixed evidence on how important human capital is in achieving audit quality. In this study, I investigate whether talent investments that promote a supportive organizational culture can improve audit quality in large accounting firms. Using hand-collected demographic data of audit employees, I first validate the association between non-partner employee attributes and audit quality. Next, using the staggered adoption of equalized parental and family leave policies by several large audit firms I find that investments in talent, particularly those that create a culture that enables employees to use such benefits, can lead to higher audit quality. Additional analyses reveal that such effects may be attributed to improved employee perceptions of job satisfaction. In addition, I find that the effects of cultural changes on audit quality are moderated by the local labor force characteristics of individual audit offices, including gender and family demographics and local audit labor economics, which further validates my main findings. Overall, these results show that despite firm-level oversight and controls intended to produce uniform audit quality, strong organizational culture remains a precondition to audit quality even in large audit firms. Further, these results support economic theory around equalized parental leave and show empirical evidence of the impacts of such policies on organizational performance.

My study is subject to several limitations. While my results are robust to numerous alternative specifications and additional analyses that support my findings and conclusions, audit firms voluntarily adopt employee benefits. Accordingly, I cannot rule out the possibility that other firm factors could contribute to my results. Additionally, the adoption of expanded parental leave benefits is likely to impact audit quality through both reduced turnover and increased employee performance related to job satisfaction. These mechanisms may be jointly impacted by improved employee job satisfaction; however, my study is unable to separate these two mechanisms in evaluating audit quality improvements. Further, my study is unable to evaluate how increased flexibility from equalized leave arrangements may impact the effectiveness of employee training and evaluation mechanisms. Finally, while I am able to provide some descriptive evidence indicating a lasting impact of improved culture, I am unable to directly observe the long-term impacts of such investments.

Notwithstanding these limitations, the results from this study have important implications for practitioners' talent management efforts and regulators' ongoing projects around quality control and human capital in auditing and accounting. Taken together, my findings indicate that despite highly regulated firm controls, audit quality is dependent upon developing an organizational culture that can increase firms' ability to attract, motivate, and retain the right people, and that audit firms are likely to benefit from continued investments in employee talent. Further, given that prior research documents negative perceptions of work-life balance by employees of large audit firms, my study

specifically shows that large firms may benefit by investing in organizational culture that encourages inclusion, equality, and flexibility.

My study focuses on a supportive firm culture that leads to greater perceived inclusion related to gender and family status, and while firms have seen progress in these areas, unique challenges remain in connection with broader inclusion initiatives related to demographics including, but not limited to, race and ethnicity. While I am unable to speak directly to such challenges, my study can provide evidence to accounting and audit firms that efforts to promote a culture of inclusion and diversity can strengthen organizational performance. My results additionally highlight the importance of tailoring talent investments to meet the needs of individual audit offices. Finally, my findings also build on economics and audit literature by providing new evidence on policy and demographic factors that moderate the effectiveness of paid family leave, and new evidence on the role that non-partner employees may uniquely play in delivering high audit quality.

Tables

Table 1: Sample Selection

Panel A: Office Demographic Sample Selection	
	Sample Size
US Client Firm-Year Observations for Big N and Mid-Market Audit Firm clients from 2017-2018	9,851
Less: company years with insufficient data to calculate variables in Regression Models	(5,611)
Less: Observations for which hand-collected employee demographic data not available	(2,536)
Sample to estimate Model (1):	1,704

Panel B: Difference in Differences Sample Selection	
	Sample Size
US Client Firm-Year Observations for Big N and Mid-Tier Audit Firm clients from 2010-2018	47,307
Less: company years with insufficient data to calculate variables in Regression Models	(26,508)
Less: Observations for companies with multiple auditors in any year of sample period or insufficient observations	(5,173)
Sample to measure the impact of equalized leave policies on audit quality:	15,626

Table 1: Sample Selection, continued

Panel C: Industry Composition of Difference in Differences Sample

Fama-French 12 Industries	**Combined**		**Treatment**		**Control**	
	Freq.	Pct	Freq.	Pct	Freq.	Pct
Consumer Non-durables	737	4.72	174	4.80	563	4.69
Consumer Durables	599	3.83	144	3.97	455	3.79
Manufacturing	2,151	13.77	550	15.17	1,601	13.34
Oil, Gas, and Coal	913	5.84	204	5.63	709	5.91
Chemicals and Allied Products	514	3.29	142	3.92	372	3.10
Computers, Software, and Electronics Equipment	2,894	18.52	623	17.18	2,271	18.93
Telephone and Television Transmission	497	3.18	112	3.09	385	3.21
Utilities	884	5.66	284	7.83	600	5.00
Wholesale, Retail, and Some Services	1,992	12.75	361	9.96	1,631	13.59
Healthcare, Medical Equip. & Drugs	1,848	11.83	479	13.21	1,369	11.41
Other	2,597	16.62	553	15.26	2,044	17.04
Total	15,626		3,626		12,000	

Note: Financial firms are excluded for the sample and, as such, there are only eleven of the Fama-French twelve industries represented

Table 2: Descriptive Statistics

Panel A: Office Employee Demographics Summary Statistics

Variables	N	Mean	Std. Dev	P25	Median	P75
ABS_DA	1,704	0.676	1.495	0.030	0.108	0.447
RESTATEMENT	1,704	0.041	0.198	0.000	0.000	0.000
PCT_MASTERS	1,704	61.258	17.412	48.464	57.895	76.563
PCT_TOP50	1,704	50.942	20.784	31.950	52.941	65.894
LNOFFICE	1,704	17.568	1.285	16.758	17.909	18.646
LOSS_IB	1,704	0.285	0.452	0.000	0.000	1.000
INDEXPERT	1,704	0.601	0.490	0.000	1.000	1.000
TENURE	1,704	13.606	11.050	5.000	12.000	19.000
LNASSETS	1,704	7.545	1.889	6.327	7.591	8.899
OCF	1,704	0.053	0.160	0.041	0.079	0.117
LEV	1,704	1.558	5.316	0.581	1.266	2.320
REV_GROWTH	1,704	0.121	0.367	0.002	0.068	0.163
OPINION	1,704	0.035	0.183	0.000	0.000	0.000
STD_REV	1,704	0.102	0.114	0.032	0.067	0.128
STD_OCF	1,704	0.044	0.068	0.013	0.024	0.047
TOBINQ	1,704	2.019	1.731	1.075	1.501	2.331
BIGN	1,704	0.850	0.357	1.000	1.000	1.000
ABSACCRUALS	1,704	0.078	0.084	0.030	0.055	0.096
PY_RESTATED	1,704	0.069	0.253	0.000	0.000	0.000

Table 2: Descriptive Statistics, continued

Panel B: Difference in Differences Sample Summary Statistics

Variables	N	Mean	Std. Dev	P25	Median	P75
ABS_DA	15,626	0.537	1.146	0.038	0.115	0.421
RESTATEMENT	15,626	0.103	0.304	0.000	0.000	0.000
LNOFFICE	15,626	17.586	1.414	16.601	17.822	18.669
LOSS_IB	15,626	0.255	0.436	0.000	0.000	1.000
INDEXPERT	15,626	0.571	0.495	0.000	1.000	1.000
TENURE	15,626	13.038	9.770	6.000	11.000	17.000
LNASSETS	15,626	7.257	1.868	5.970	7.295	8.542
OCF	15,626	0.070	0.142	0.047	0.086	0.131
LEV	15,626	1.519	5.111	0.491	1.062	2.043
REV_GROWTH	15,626	0.092	0.333	-0.021	0.052	0.144
OPINION	15,626	0.016	0.125	0.000	0.000	0.000
STD_REV	15,626	0.109	0.122	0.034	0.069	0.135
STD_OCF	15,626	0.045	0.059	0.014	0.028	0.052
TOBINQ	15,626	2.234	1.873	1.179	1.643	2.529
LOC_QUOTIENT	15,626	1.207	0.215	1.070	1.220	1.340
LANDGRANT	15,626	0.219	0.413	0.000	0.000	0.000
POP_PCT_CHANGE	15,626	0.031	0.032	0.002	0.029	0.060
ABSACCRUALS	15,626	0.078	0.081	0.031	0.056	0.096
PY_RESTATED	15,626	0.111	0.314	0.000	0.000	0.000

Table 2: Descriptive Statistics, continued

Panel C: Treatment and Control Firm Year Characteristics

	Treatment			*Control*				
Variable	**n**	**Mean**	**Med.**	**n**	**Mean**	**Med.**	**Mean Diff.**	
ABS_DA	3,626	0.563	0.118	12,000	0.529	0.115	0.034	
RESTATEMENT	3,626	0.070	0.000	12,000	0.113	0.000	-0.043	***
LNOFFICE	3,626	18.130	18.211	12,000	17.422	17.657	0.708	***
LOSS_IB	3,626	0.240	0.000	12,000	0.259	0.000	-0.018	*
INDEXPERT	3,626	0.672	1.000	12,000	0.541	1.000	0.131	***
TENURE	3,626	16.328	15.000	12,000	12.044	10.000	4.284	***
LNASSETS	3,626	7.937	7.930	12,000	7.051	7.059	0.886	***
OCF	3,626	0.075	0.086	12,000	0.068	0.086	0.006	*
LEV	3,626	1.751	1.298	12,000	1.448	0.995	0.302	**
REV_GROWTH	3,626	0.075	0.044	12,000	0.098	0.054	-0.023	***
OPINION	3,626	0.015	0.000	12,000	0.016	0.000	-0.001	
STD_REV	3,626	0.090	0.056	12,000	0.115	0.073	-0.024	***
STD_OCF	3,626	0.038	0.023	12,000	0.047	0.029	-0.008	***
TOBINQ	3,626	2.305	1.701	12,000	2.212	1.625	0.093	**
LOC_QUOTIENT	3,626	1.207	1.210	12,000	1.206	1.220	0.001	
LANDGRANT	3,626	0.214	0.000	12,000	0.220	0.000	-0.007	
POP_PCT_CHANGE	3,626	0.030	0.024	12,000	0.032	0.029	-0.002	**
LAGABSACCRUALS	3,626	0.074	0.054	12,000	0.079	0.057	-0.005	**
PY_RESTATED	3,626	0.100	0.000	12,000	0.114	0.000	-0.014	*

Notes: This table presents descriptive statistics for variables used throughout the paper. Panel A presents descriptive statistics for the full sample, while Panel B presents descriptive statistics separately for Treatment (*LEAVE* = 1) and Control (*LEAVE*=0) observations. *, **, *** Indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are as defined in Appendix A.

All variables are as defined in Appendix A.

Table 3: Correlation Tables

Panel A: Pearson Correlation Coefficients Between Variables in Employee Demographics Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) *ABS_DA*	1	-0.02	**-0.04**	-0.02	-0.01	**0.06**	**-0.09**	**-0.03**	**-0.10**	**-0.19**	-0.02	**0.09**	**0.13**	**0.08**	**0.21**	**0.06**	**0.15**	-0.02
(2) *RESTATEMENT*		1	**0.03**	0.03	0.02	0.02	0.00	-0.02	0.01	0.00	0.02	0.00	-0.01	0.01	-0.02	0.00	-0.03	**0.50**
(3) *PCT_MASTERS*			1	**0.49**	-0.03	0.02	**0.04**	**-0.05**	**0.07**	**0.10**	0.02	0.02	-0.01	-0.02	**-0.05**	**0.05**	**-0.05**	**0.04**
(4) *PCT_TOP_50*				1	**0.16**	**-0.04**	**0.08**	**0.00**	**0.09**	**0.05**	0.01	0.00	**-0.03**	0.01	-0.02	-0.01	**0.05**	**0.03**
(5) *LNOFFICE*					1	**-0.10**	**0.11**	**0.22**	**0.42**	**0.09**	**0.04**	-0.01	**-0.06**	**-0.09**	**-0.13**	**-0.07**	**-0.04**	0.03
(6) *LOSS_IB*						1	**-0.14**	**-0.21**	**-0.33**	**-0.46**	-0.02	-0.02	**0.24**	**0.13**	**0.31**	**0.47**	**-0.05**	0.03
(7) *INDEXPERT*							1	**0.15**	**0.28**	**0.09**	**0.05**	**-0.05**	**-0.06**	**-0.05**	**-0.14**	**-0.10**	**-0.07**	0.00
(8) *TENURE*								1	**0.33**	**0.14**	**0.05**	**-0.08**	**-0.09**	**-0.12**	**-0.15**	**-0.15**	**-0.03**	-0.01
(9) *LNASSETS*									1	**0.35**	**0.12**	-0.02	**-0.23**	**-0.26**	**-0.44**	**-0.26**	**-0.15**	0.00
(10) *OCF*										1	**0.04**	**-0.06**	**-0.41**	**-0.09**	**-0.61**	**-0.15**	-0.02	-0.01
(11) *LEV*											1	-0.02	**-0.06**	-0.01	**-0.08**	**-0.04**	**-0.06**	0.02
(12) *REV_GROWTH*												1	**-0.03**	**0.06**	**0.11**	**-0.06**	**0.27**	-0.01
(13) *OPINION*													1	**0.06**	**0.36**	**0.32**	0.01	0.00
(14) *STD_REV*														1	**0.26**	**0.14**	**0.12**	-0.01
(15) *STD_OCF*															1	**0.30**	**0.26**	-0.01
(16) *TOBINQ*																1	-0.01	**-0.05**
(17) *LAGABSACCRUALS*																	1	0.00
(18) *PY_RESTATED*																		1

Table 3: Correlation Tables, continued

Panel B: Pearson Correlation Coefficients Between Variables in Difference in Differences Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) *ABS_DA*	1	0.00	0.02	**0.07**	**-0.07**	**-0.03**	**-0.09**	**-0.15**	-0.02	**0.09**	**0.10**	**-0.02**	**0.17**	**0.14**	**0.04**	-0.01	**0.03**	**0.03**	**-0.05**
(2) *RESTATEMENT*		1	0.01	0.01	0.01	**-0.02**	0.01	0.00	0.01	0.00	-0.01	-0.01	-0.02	**-0.04**	0.00	**0.53**	0.02	0.00	0.02
(3) *LNOFFICE*			1	**-0.03**	0.01	**0.17**	**0.32**	**0.03**	**0.02**	0.01	**-0.03**	**0.14**	**-0.05**	**0.06**	**-0.04**	0.02	**0.32**	**-0.04**	**-0.22**
(4) *LOSS_IB*				1	**-0.08**	**-0.17**	**-0.33**	**-0.49**	-0.01	**-0.03**	**0.20**	**-0.11**	**0.32**	0.00	**0.46**	**0.04**	**0.05**	**0.03**	0.01
(5) *INDEXPERT*					1	**0.16**	**0.26**	**0.05**	**0.03**	**-0.03**	**-0.03**	**0.14**	**-0.09**	**-0.07**	**-0.07**	0.02	**-0.18**	0.00	**0.06**
(6) *TENURE*						1	**0.33**	**0.11**	**0.04**	**-0.06**	**-0.05**	**0.19**	**-0.13**	**-0.03**	**-0.13**	-0.02	**-0.05**	**-0.02**	**-0.06**
(7) *LNASSETS*							1	**0.34**	**0.12**	**-0.05**	**-0.17**	**0.52**	**-0.43**	**-0.16**	**-0.26**	0.01	-0.02	**-0.12**	0.02
(8) *OCF*								1	0.02	**-0.05**	**-0.35**	**0.09**	**-0.52**	0.00	**-0.14**	-0.01	0.00	**-0.06**	**0.06**
(9) *LEV*									1	0.01	**-0.05**	**0.06**	**-0.06**	**-0.05**	**-0.03**	0.01	-0.01	**-0.03**	-0.02
(10) *REV_GROWTH*										1	**-0.02**	0.01	**0.18**	**0.28**	**-0.04**	-0.02	0.01	**0.03**	0.00
(11) *OPINION*											1	**-0.04**	**0.28**	0.01	**0.24**	-0.01	0.02	0.00	0.00
(12) *STD_REV*												1	**-0.10**	**-0.04**	**-0.07**	-0.01	-0.02	**-0.05**	**0.03**
(13) *STD_OCF*													1	**0.26**	**0.29**	-0.02	**0.04**	**0.08**	0.00
(14) *TOBINQ*														1	**0.06**	**-0.06**	**0.06**	**0.09**	**-0.04**
(15) *LAGABSACCRUALS*															1	0.01	**0.06**	0.00	**0.08**
(16) *PY_RESTATED*																1	0.02	0.00	**0.02**
(17) *LOC_QUOTIENT*																	1	**0.16**	**0.06**
(18) *LANDGRANT*																		1	**0.11**
(19) *POP_PCT_CHANGE*																			1

Note: This table presents the pairwise Pearson correlations, Bold face type indicates statistical significance at $p < 0.01$. Variable definitions are included in Appendix A

Table 4: Main Effect of Employee Qualification on Audit Quality

	(1) *DV = Abn. Accr.*		(2) *DV = Restatement*		(3) *DV = Abn. Accr.*		(4) *DV = Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**
PCT_MASTERS	-0.004	-0.816	-0.051	-1.968 **				
PCT_TOP_50					-0.010	-3.171 ***	-0.028	-1.258
LNOFFICE	-0.043	-0.978	-0.049	-0.190	-0.026	-0.596	0.022	0.085
LOSS_IB	-0.159	-1.748 *	0.332	0.835	-0.152	-1.691 *	0.348	0.850
INDEXPERT	-0.065	-0.931	0.673	1.790 *	-0.057	-0.850	0.741	1.920 *
TENURE	0.002	0.728	-0.013	-0.768	0.002	0.627	-0.013	-0.771
LNASSETS	0.009	0.381	0.201	1.555	0.010	0.408	0.222	1.706 *
OCF	0.139	0.262	-3.268	-1.536	0.141	0.267	-3.363	-1.596
LEV	-0.003	-0.468	-0.021	-0.855	-0.003	-0.502	-0.026	-1.172
REV_GROWTH	0.118	0.640	-0.101	-0.296	0.121	0.658	-0.084	-0.248
OPINION	0.387	1.357	-1.692	-1.296	0.373	1.321	-1.688	-1.398
STD_REV	0.552	1.815 *	-0.959	-0.531	0.585	1.928 *	-0.934	-0.513
STD_OCF	1.734	1.536	-2.099	-0.458	1.709	1.525	-2.408	-0.527
TOBINQ	-0.019	-0.682	0.005	0.040	-0.017	-0.645	0.006	0.049
BIGN	0.091	0.590	-0.645	-0.785	0.148	0.975	-0.987	-1.274
LAGABSACCRUALS	0.285	0.552			0.288	0.555		
PY_RESTATED			4.022	10.017 ***			4.031	9.943 ***
Constant	1.424	2.017 **	1.542	0.366	1.320	1.988 **	-0.945	-0.241
Observations	1,704		1,284		1,704		1,284	
Adj./Psuedo R-square	0.535		0.413		0.537		0.411	
MSA FE	Yes		Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	

Notes: This table presents the results of estimating Model (1) for all observations in my sub-sample of audit offices for which direct demographic data were collected. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively.

Variable definitions are included in Appendix A

Table 5: The Impact of Expanded Leave Policies on Audit Quality: Abnormal Accruals

	(1)		(2)		(3)		(4)	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.049	-1.908 *	-0.046	-1.776 *	-0.047	-1.828 *	-0.045	-1.762 *
LNOFFICE			-0.033	-3.190 ***	-0.036	-2.955 ***	-0.016	-0.911
LOSS_IB			-0.060	-2.315 **	-0.060	-2.338 **	-0.007	-0.255
INDEXPERT			-0.040	-1.803 *	-0.037	-1.659 *	-0.040	-1.372
TENURE			-0.002	-1.646	-0.002	-1.530	0.002	0.976
LNASSETS			0.003	0.377	0.002	0.210	0.000	0.009
OCF			0.385	2.824 ***	0.376	2.764 ***	-0.043	-0.262
LEV			0.000	0.031	0.000	0.004	0.001	0.497
REV_GROWTH			0.109	2.276 **	0.109	2.288 **	0.140	2.842 ***
OPINION			0.587	4.712 ***	0.583	4.739 ***	0.389	3.478 ***
STD_REV			0.533	6.035 ***	0.530	6.054 ***	0.196	1.857 *
STD_OCF			-0.312	-1.032	-0.317	-1.053	0.736	2.047 **
TOBINQ			-0.005	-0.645	-0.005	-0.592	0.032	2.732 ***
LAGABSACCRUALS			0.275	2.234 **	0.264	2.149 **	0.090	0.765
LOC_QUOTIENT					0.078	1.329	0.083	1.114
LANDGRANT					-0.063	-2.239 **	-0.062	-0.928
POP_PCT_CHANGE					0.410	1.212	-1.517	-1.873 *
Constant	0.548	43.414 ***	1.065	5.372 ***	1.037	5.020 ***	0.635	1.817 *
Observations	15,626		15,626		15,626		15,626	
Adjusted R-squared	0.304		0.313		0.314		0.393	
Audit Firm FE	Yes		Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes		No	
Company FE	No		No		No		Yes	
Year FE	Yes		Yes		Yes		Yes	

Notes: This table presents the results of estimating Model (2) for all observations in my sample. Column (1) presents the results when including only fixed effects in the model, while column (2) presents results when including firm and auditor controls, and column (3) adds MSA-level controls. Column (4) presents the results when replacing industry fixed effects with company fixed effects. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively.

Variable definitions are included in Appendix A

Table 6: The Impact of Expanded Leave Policies on Audit Quality: Restatements

	(1)		(2)		(3)		(4)	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.441	-3.472 ***	-0.468	-3.852 ***	-0.468	-3.839 ***	-0.536	-3.911 ***
LNOFFICE			-0.031	-1.102	-0.027	-0.831	-0.101	-1.076
LOSS_IB			0.044	0.492	0.043	0.482	0.038	0.349
INDEXPERT			-0.075	-1.026	-0.073	-0.998	0.088	0.693
TENURE			-0.003	-0.755	-0.003	-0.665	0.007	0.571
LNASSETS			0.011	0.453	0.011	0.429	0.516	4.655 ***
OCF			-0.266	-0.779	-0.279	-0.821	-0.648	-1.178
LEV			0.007	1.274	0.008	1.302	0.000	0.044
REV_GROWTH			0.183	1.759 *	0.183	1.767 *	0.083	0.684
OPINION			-0.061	-0.188	-0.060	-0.186	-0.296	-0.835
STD_REV			0.177	0.609	0.169	0.580	1.023	2.549 **
STD_OCF			-1.394	-1.920 *	-1.423	-1.960 *	0.515	0.464
TOBINQ			-0.029	-1.296	-0.029	-1.306	0.013	0.374
PY_RESTATED			3.147	44.895 ***	3.145	44.696 ***	1.213	16.953 ***
LOC_QUOTIENT					0.118	0.679	0.213	0.574
LANDGRANT					-0.025	-0.298	0.089	0.311
POP_PCT_CHANGE					1.531	1.420	-0.665	-0.146
Constant	-0.355	-0.683	-0.917	-1.319	-1.172	-1.648 *	-0.812	-0.950
Observations	15,611		15,611		15,611		5,458	
Pseudo R-squared	0.0703		0.305		0.305		0.164	
Audit Firm FE	Yes		Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes		No	
Company FE	No		No		No		Yes	
Year FE	Yes		Yes		Yes		Yes	

Notes: This table presents the results of estimating Model (2) for all observations in my sample. Column (1) presents the results when including only fixed effects in the model, while column (2) presents results when including firm and auditor controls, and column (3) adds MSA-level controls. Column (4) presents the results when replacing industry fixed effects with company fixed effects. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the *, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively. Variable definitions are included in Appendix A

Table 7: Equalized Leave Policy Effect on Audit Quality: City Level Demographics

Panel A: Equalized Leave Policy by Tercile of Local Dual Income Rates

	Low Dual Income *DV=Restatement*		**High Dual Income** *DV=Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.540	-2.785 ***	-0.841	-3.484 ***
Observations	6,370		4,841	
Psuedo R-squared	0.307		0.327	
Controls	Yes		Yes	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Chow test of equality with LOW			$\chi 2$ = 7.01**	

Panel B: Equalized Leave Policy by Tercile of Location Quotient

	Low Location Quotient *DV=Restatement*		**High Location Quotient** *DV=Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.184	-0.825	-0.677	-3.046 ***
Observations	5,964		4,593	
Psuedo R-squared	0.335		0.296	
Controls	Yes		Yes	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Chow test of equality with LOW			$\chi 2$ = 6.26**	

Note: This table presents the results of estimating Model (2) for the the samples of offices in the top and bottom tercile of *DUAL_INC* (Panel A) and *LOC_QUOTIENT* (Panel B). I then test for differences in audit quality between each tercile. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated and controls are included, but the coefficients are suppressed for brevity.
*, **, and *** Represent two-tailed statistical significance at p < 0.10, 0.05, and 0.01, respectively.
Variable definitions are included in Appendix A

Table 8: Equalized Leave Policy Effect on Audit Quality: Office Level Demographics

Panel A: Equalized Leave Policy by Tercile of Office Female Employee Percentage

	Low Female Employment *DV=Restatement*		High Female Employment *DV=Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.083	-0.313	-0.961	-2.067 **
Observations	5,964		4,593	
Psuedo R-squared	0.328		0.313	
Controls	Yes		Yes	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Chow test of equality with LOW			$\chi 2$ = 23.30***	

Panel B: Equalized Leave Policy by Tercile of Office Masters Attainment

	Low Masters Attainment *DV=Restatement*		High Masters Attainment *DV=Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.814	-2.822 ***	-0.463	-1.250
Observations	2,563		2,601	
Psuedo R-squared	0.325		0.304	
Controls	Yes		Yes	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Chow test of equality with LOW			$\chi 2$ = .82	

Note: This table presents the results of estimating Model (2) for the the sub-sample of offices in the top and bottom tercile of *PROP_FEMALE* (Panel A) and *PROP_MASTERS* (Panel B). I then test for differences in audit quality between each tercile. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated and controls are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively.

Variable definitions are included in Appendix A

Table 9: The Impact of Expanded Leave Policies on Audit Quality: Matched Sample

	Model 1: OLS *DV = Abnormal Accruals*		Model 2: Logistic *DV = Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.107	-2.046 **	-0.413	-1.724 *
BIRTH_RATE	0.019	4.208 ***	0.045	2.707 ***
LNOFFICE	-0.057	-2.607 ***	0.009	0.122
LOSS_IB	-0.048	-1.155	-0.067	-0.371
INDEXPERT	-0.057	-1.493	-0.058	-0.370
TENURE	-0.001	-0.767	-0.007	-1.108
LNASSETS	0.021	1.330	-0.002	-0.044
OCF	0.145	0.638	-1.593	-2.269 **
LEV	-0.000	-0.118	0.021	1.739 *
REV_GROWTH	0.177	1.892 *	0.438	2.317 **
OPINION	0.666	3.708 ***	-0.204	-0.455
STD_REV	-0.000	-1.048	-0.000	-1.319
STD_OCF	1.043	1.700 *	-4.596	-2.647 ***
TOBINQ	-0.004	-0.317	0.015	0.410
LOC_QUOTIENT	0.238	2.077 **	-0.138	-0.411
LANDGRANT	-0.043	-1.011	-0.143	-0.874
POP_PCT_CHANGE	-0.821	-1.479	-2.403	-1.021
LAGABSACCRUALS	0.317	1.654 *		
PY_RESTATED			2.941	21.005 ***
Constant	0.223	0.519	-3.278	-1.884 *
Observations	4,821		4,679	
Adjusted/Psuedo R-squared	0.406		0.296	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	

Notes: This table presents the results of estimating Model (2) using coarsened exact matching. Column (1) presents the results when including only fixed effects in the model, while column (2) presents results when including firm and auditor controls, and column (3) adds MSA-level controls. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively. Variable definitions are included in Appendix A

Table 10: The Impact of Expanded Leave Policies on Audit Quality: Pseudo-event Regressions

	Model 1: OLS *DV = Abnormal Accruals*		Model 2: Logistic *DV = Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.034	-0.829	0.192	0.751
LNOFFICE	-0.015	-1.530	0.002	0.063
LOSS_IB	-0.068	-2.606 ***	0.170	1.649 *
INDEXPERT	-0.036	-1.590	-0.066	-0.758
TENURE	-0.003	-2.496 **	0.002	0.345
LNASSETS	-0.012	-1.403	0.109	3.347 ***
OCF	0.416	3.138 ***	0.145	0.381
LEV	0.002	0.834	0.002	0.255
REV_GROWTH	0.150	2.263 **	0.017	0.137
OPINION	0.343	3.076 ***	-0.556	-1.278
STD_REV	0.000	2.483 **	-0.000	-2.577 ***
STD_OCF	0.127	0.429	0.517	0.642
TOBINQ	0.011	1.213	-0.012	-0.458
LOC_QUOTIENT	-0.032	-0.749	0.001	0.006
LANDGRANT	-0.063	-2.527 **	0.035	0.359
POP_PCT_CHANGE	0.248	0.783	2.424	1.842 *
LAGABSACCRUALS	0.226	1.880 *		
PY_RESTATED			3.184	35.875 ***
Constant	0.851	4.912 ***	-3.343	-4.193 ***
Observations	8,352		8,293	
Adjusted/Psuedo R-squared	0.266		0.299	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	

Notes: This table presents the results of estimating Model (2) using using a psuedo-event period from 2005-2013 with event dates staggered consistent with the event dates in the full sample in Tables 4 & 5. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at p < 0.10, 0.05, and 0.01, respectively. Variable definitions are included in Appendix A

Table 11: The Impact of Expanded Leave Policies on Audit Quality: Big 4 Sample

	Model 1: OLS *DV = Abnormal Accruals*		Model 2: Logistic *DV = Restatement*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	-0.045	-1.708 *	-0.314	-2.303 **
LNOFFICE	-0.030	-2.363 **	-0.043	-1.274
LOSS_IB	-0.049	-1.657 *	0.083	0.841
INDEXPERT	-0.044	-1.811 *	-0.115	-1.485
TENURE	-0.002	-1.552	-0.003	-0.731
LNASSETS	0.000	0.058	0.006	0.215
OCF	0.495	3.249 ***	-0.356	-0.945
LEV	0.000	0.139	0.009	1.514
REV_GROWTH	0.102	1.888 *	0.105	0.868
OPINION	0.559	3.978 ***	-0.122	-0.282
STD_REV	0.601	6.192 ***	0.238	0.712
STD_OCF	-0.489	-1.446	-1.583	-1.853 *
TOBINQ	-0.006	-0.662	-0.030	-1.183
LOC_QUOTIENT	0.025	0.438	0.161	0.866
LANDGRANT	-0.059	-1.933 *	-0.056	-0.595
POP_PCT_CHANGE	0.609	1.649 *	1.700	1.460
LAGABSACCRUALS	0.235	1.647 *		
PY_RESTATED			3.110	41.176 ***
Constant	1.007	4.526 ***	-1.139	-1.427
Observations	13,391		13,384	
Adjusted/Psuedo R-squared	0.313		0.311	
Audit Firm FE	Yes		Yes	
Industry FE	Yes		Yes	
Year FE	Yes		Yes	

Notes: This table presents the results of estimating Model (2) using using a population that contains only firm-years audited by Big 4 audit firms. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively. Variable definitions are included in Appendix A

Table 12: Effect of Equalized Leave on Employee Job Satisfaction

	(1) *DV = Overall_Review*		(2) *DV = Balance_Review*		(3) *DV = Comp_Review*	
	Coeff.	**Test Stat.**	**Coeff.**	**Test Stat.**	**Coeff.**	**Test Stat.**
LEAVE	0.159	1.781 **	0.213	2.656 ***	0.119	1.613 *
REVIEW_EXP	0.037	3.750 ***	0.018	1.995 **	0.011	0.771
CURRENT	0.090	1.344	0.025	0.272	0.012	0.186
FORMER	-0.301	-5.080 ***	-0.362	-3.591 ***	-0.089	-0.958
Constant	3.521	42.106 ***	2.358	21.053 ***	3.150	38.197 ***
Observations	2,335		2,237		2,225	
Adjusted R-squared	0.047		0.078		0.025	
Audit Firm FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
MSA FE	Yes		Yes		Yes	

Notes: This table presents the results of estimating Model (3) for all observations in my sample of hand-collected employee review data from 2010-2018. Column (1) presents the results for overall review ratings, while columns (2) and (3) present the results for employee reviews of work-life balance and compensation, repectively. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.
*, **, and *** Represent one-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively.
Variable definitions are included in Appendix A

Table 13: Impact of Equalized Leave Policy on Audit Fees

	DV= Log Audit Fees	
	Coeff.	**Test Stat.**
LEAVE	-0.019	-1.539
LNASSETS	0.513	74.223 ***
CR	-0.037	-6.004 ***
CA_TA	0.746	9.654 ***
ARINV	0.483	5.284 ***
ROA	-0.178	-5.137 ***
LOSS_IB	0.154	9.840 ***
FOREIGN	-0.064	-0.420
MERGER	0.031	1.585
BUSY	0.039	1.792 *
LEV	0.000	0.415
INTANG	0.424	7.162 ***
OPINION	0.094	2.019 **
MATWEAK	0.185	6.859 ***
CONSTANT	10.115	135.536 ***
Observations	15,626	
Adjusted R-squared	0.825	
Audit Firm FE	Yes	
Industry FE	Yes	
Year FE	Yes	

Notes: This table presents the results of estimating Model (4) for all observations in my sample. Test statistics are calculated using standard errors clustered for each unique client firm in the sample. Fixed effects as indicated are included, but the coefficients are suppressed for brevity.

*, **, and *** Represent two-tailed statistical significance at $p < 0.10$, 0.05, and 0.01, respectively.

Figures

Figure 1: Abnormal Accruals Parallel Trends Assumption

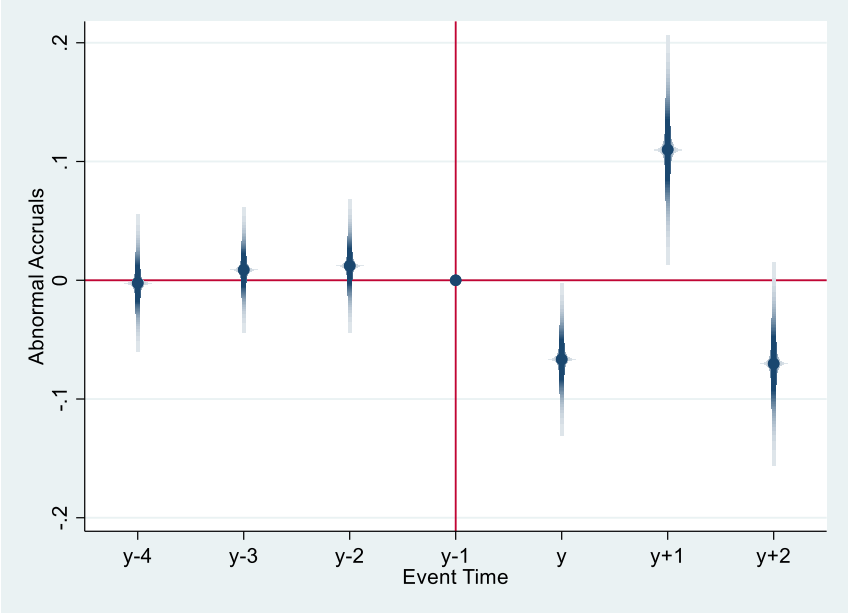


Figure 2: Restatements Parallel Trends Assumption

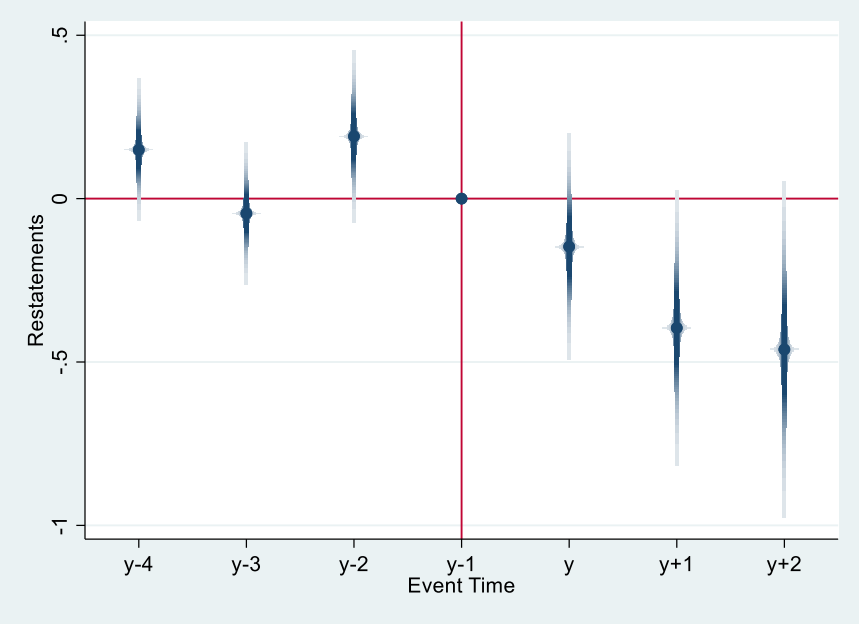


Figure 3: Abnormal Accruals Parallel Trends Assumption: Big 4 Sample

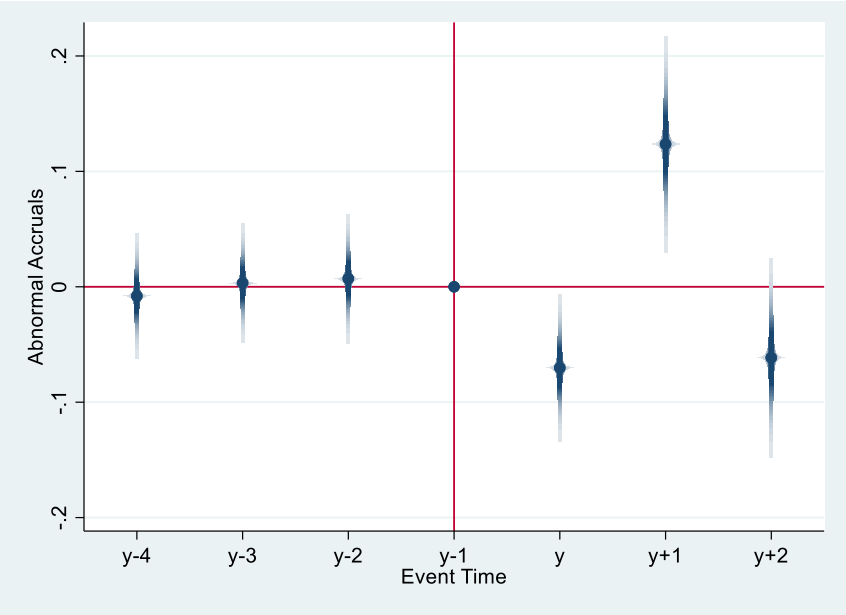


Figure 4: Restatements Parallel Trends Assumption: Big 4 Sample

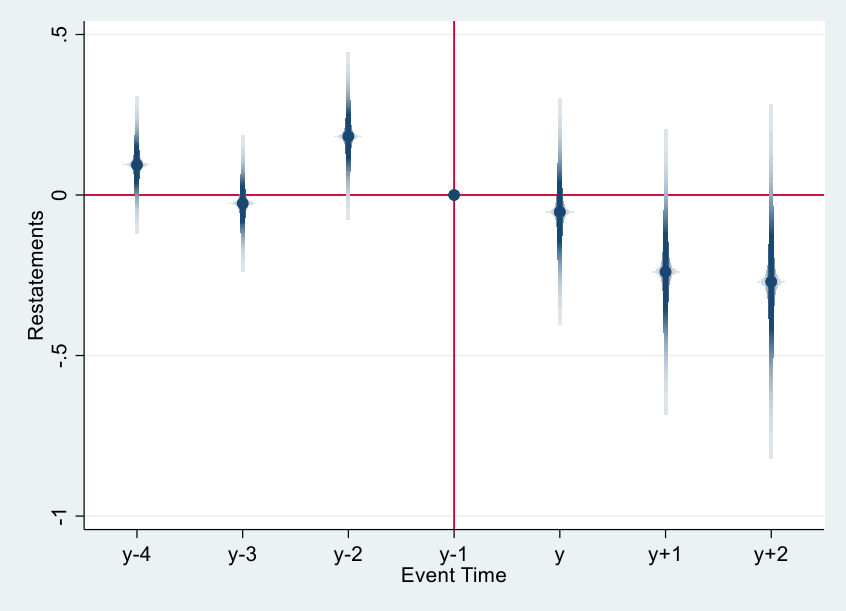


Figure 5: Restatements Time Series Trend: EY & Deloitte

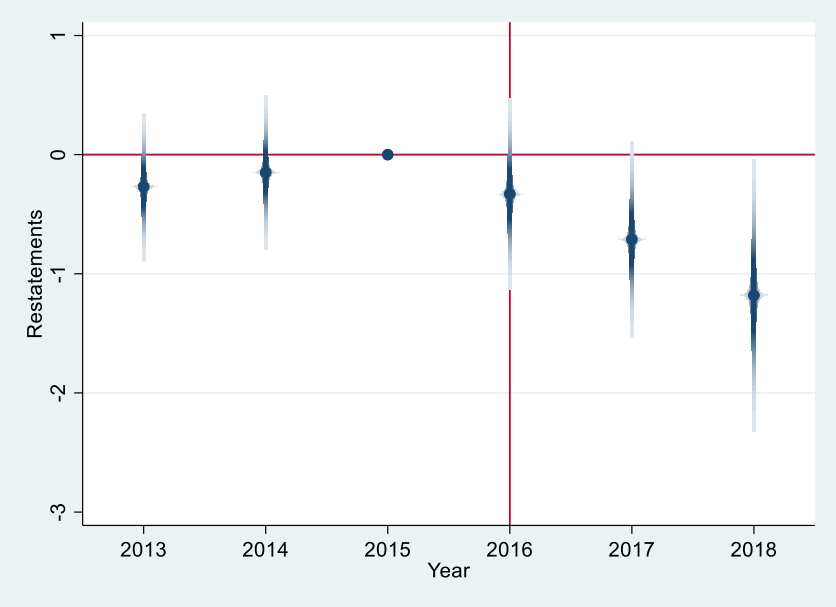
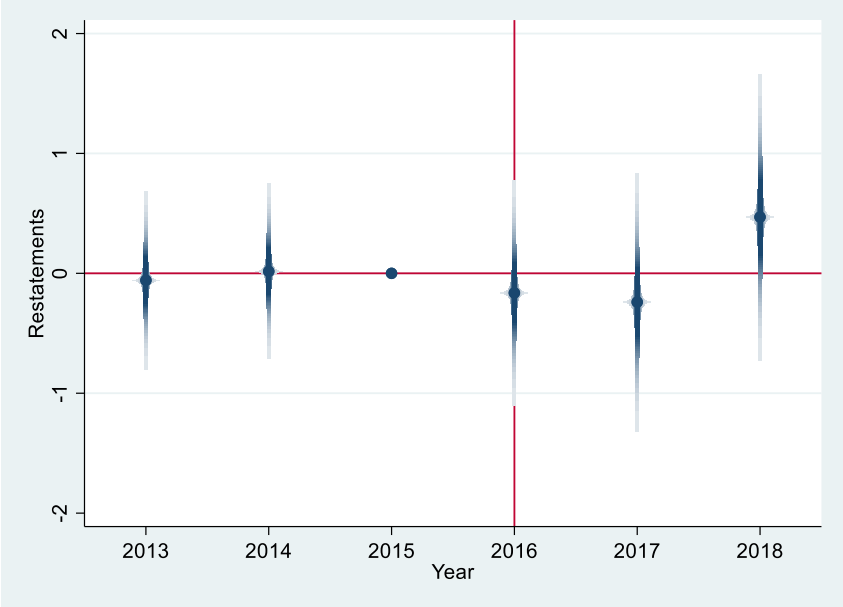


Figure 6: Restatements Time Series Trend: KPMG



Appendices

Appendix A: Variable Definitions

Variable	Definition	Source
ABS_DA	= The absolute value of abnormal accruals estimated from the Francis and Yu (2009) accruals model discussed in Chapter 3 of this paper. The equation is estimated by industry and year, and requires at least 10 observations	C
ARINV	= the ratio of the company's accounts receivable (RECT) plus inventory (INV) to total assets (AT)	C
AVG_EXP	= The average years of post-graduation work experience of for audit office employees as described in Chapter 4	HC
BALANCE_REVIEW	= The firm work-life balance review score given by an individual employee on a scale from 1-5, where higher scores indicate greater satisfaction	HC
BIGN	= An indicator variable equal to one if the the company auditor is a Big 4 audit firm (EY, Deloitte, KPMG, or PwC), and zero otherwise	AA
BUSY	= an indicator variable set equal to 1 if a company's fiscal year end is December 31st, and 0 otherwise	C
CA_TA	= the ratio of the company's current assets (ACT) to total assets (AT)	C
COMP_REVIEW	= The firm compensation and benefits review score given by an individual employee on a scale from 1-5, where higher scores indicate greater satisfaction	HC
CR	= the company's current ratio, measured as current assets (ACT) divided by current liabilities (LCT)	C

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APPENDIX A (continued)

Variable	Definition	Source
CURRENT	= An indicator variable equal to one if an employee indicated he or she was a current employee at the time of review, and zero otherwise	HC
FOREIGN	= an indicator variable set equal to 1 if the company has any foreign sales, and 0 otherwise	C
FORMER	= An indicator variable equal to one if an employee indicated that he or she was a former employee at the time of review, and zero otherwise	
INDEXPERT	= An indicator variable equal to 1 if the auditor is the city-industry leader, measured using total audit fees within a particular 2-digit SIC code within a single city, calculated using all firm-years within Audit Analytics before data restrictions	AA
INTANG	= the ratio of the company's intangible assets (INTAN) to total assets (AT)	C
LAGABSACCRUALS	= The absolute value of total client-firm accruals (Compustat item NI - Compustat item OANCF) in year t-1	C
LEAVE	= An indicator variable equal to one for observation in which the audit firm had previously adopted equalized parental leave	See Ch. III
LANDGRANT	= An indicator variable equal to one if the signing auditor city contains a land grant university	Moretti (2004)
LEV	= The ratio of total liabilities (Compustat item LT) to common equity (Compustat item CEQ)	C
LNASSETS	=The natural log of the audit client's total assets in millions of dollars (Compustat item AT)	C

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APPENDIX A (continued)

Variable	Definition	Source
LNOFFICE	= The natural log of total audit fees in the current year by the opinion signing auditor's office. Audit offices are defined as all audits for which the opinion is signed by a common audit firm (Audit Analytics item AUDITOR_FKEY_ and city name (Audit Analytics item AUDITOR_CITY)	AA
LOC_QUOTIENT	= The labor quotient for accountants and auditors (Occupation 13-2011) for the MSA in which the signing auditor office is located. Calculated as the number of accountants and auditors per capita at the MSA level divided by the same ratio at the national level. Calculated on a yearly basis	BLS
LogAF	= The natural log of total audit fees	AA
LOSS_IB	= An indicator variable equal to 1 if the client firm reported negative income before extraordinary items (Compustat item IB); and 0 otherwise	C
MATWEAK	= an indicator variable set equal to 1 if the company received a material weakness internal control opinion (under SOX Section 404), and 0 otherwise	AA
MERGER	= an indicator set equal to 1 if the company reported pre-tax merger and acquisition activity (AQP), and 0 otherwise	C
OCF	= total client company cash flows from operations (Compustat item OANCF) scaled by total assets (Compustat item AT)	C
OPINION	= an indicator variable equal to 1 if the audit client received a going concern opinion in the current year; and 0 otherwise (Audit Analytics item GOING_CONCERN)	AA

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APPENDIX A (continued)

Variable	Definition	Source
OVERALL_REVIEW	= The firm overall review score given by an individual employee on a scale from 1-5, where higher scores indicate greater satisfaction	HC
PCT_FEMALE	= The percentage of audit office employees who are female. Determined using historic US Social Security Administration data as described in Chapter 4	HC
PCT_MASTERS	= The percentage of audit office employees who indicated that they obtained a graduate degree through publicly available social networking platforms as described in Chapter 4	HC
PCT_TOP_50	= The proportion of audit office employees who indicated that they attended a university that is ranked in the Top 50 accounting programs. University attendance information is obtained through publicly available social networking platforms as described in Chapter 4, while rankings are obtained from the 2017-2019 Public Accounting Report	HC
POP_PCT_CHANGE	= The percentage change in population from 2014-2018 for the MSA in which the signing auditor office is located	USC
PY_RESTATED	= An indicator variable equal to 1 if a client firm's financial statements from year t-1 were eventually restated, as reported in Audit Analytics' Restatements database; and 0 otherwise	AA
RESTATEMENT	= An indicator variable equal to 1 if a client firm-year's financial statements were eventually restated, as reported by the Audit Analytics Restatements database; and 0 otherwise	AA

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APPENDIX A (continued)

Variable	Definition	Source
REV_GROWTH	= Total client firm revenue in the current year (Compustat item REVT) less revenue in period t-1, scaled by total client-firm revenue in year t-1	C
REVIEW_EXP	= The number of years that an employee indicated they had spent at the reviewed audit firm as of the time that the employee review was submitted	HC
ROA	= return on assets, defined as earnings before interest and taxes (OIADP) divided by total assets (AT)	C
STD_OCF	=The standard deviation of client firm cash flows from operations (Compustat item OANCF) for the period t-4 through t-1	C
STD_REV	=The standard deviation of client firm revenue (Compustat item REVT) for the period t-4 through t-1	C
TOBINQ	= Tobin's Q, calculated as the client firm's market value of equity, less the book value of equity, plus total assets, all scaled by lagged total assets	C

Data Source

AA	= Audit Analytics
C	= Compustat
BLS	= Bureau of Labor Statistics
HC	= Hand Collected
USC	= US Census Data

Appendix B: Hand Collected Demographic Office Composition

MSA Code	MSA Name	Observations	Total Audit Fees
12060	Atlanta-Sandy Springs-Roswell, GA	624	$ 1,840,000,000
12420	Austin-Round Rock, TX	128	231,000,000
13820	Birmingham-Hoover, AL	73	136,000,000
15380	Buffalo-Cheektowaga-Niagara Falls, NY	84	99,000,000
16740	Charlotte-Concord-Gastonia, NC-SC	352	983,000,000
16980	Chicago-Naperville-Elgin, IL-IN-WI	1,142	3,990,000,000
17140	Cincinnati, OH-KY-IN	195	718,000,000
17460	Cleveland-Elyria, OH	346	1,130,000,000
19740	Denver-Aurora-Lakewood, CO	453	904,000,000
19820	Detroit-Warren-Dearborn, MI	318	1,610,000,000
25540	Hartford-West Hartford-East Hartford, CT	160	731,000,000
26420	Houston-The Woodlands-Sugar Land, TX	1,110	3,200,000,000
26900	Indianapolis-Carmel-Anderson, IN	244	520,000,000
28140	Kansas City, MO-KS	191	415,000,000
33340	Milwaukee-Waukesha-West Allis, WI	399	987,000,000
34980	Nashville-Davidson--Murfreesboro--Franklin, TN	187	355,000,000
37980	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	777	2,170,000,000
38060	Phoenix-Mesa-Scottsdale, AZ	280	644,000,000
38300	Pittsburgh, PA	248	659,000,000
41180	St. Louis, MO-IL	305	1,040,000,000
41620	Salt Lake City, UT	169	169,000,000

MSA Code	MSA Name	Observations	Total Audit Fees
42660	Seattle-Tacoma-Bellevue, WA	353	1,180,000,000
45300	Tampa-St. Petersburg-Clearwater, FL	168	408,000,000
	TOTAL	**8,306**	**$ 24,119,000,000**

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